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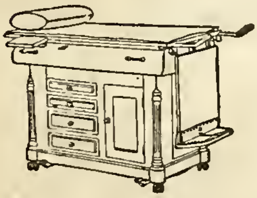
VOL. XIII. NO. 1. JANUARY 1907

THE PLEXUS

BATAVIA AND CHICAGO.

A RARE BARGAIN
GARLAND SURGICAL OPERATING TABLE.



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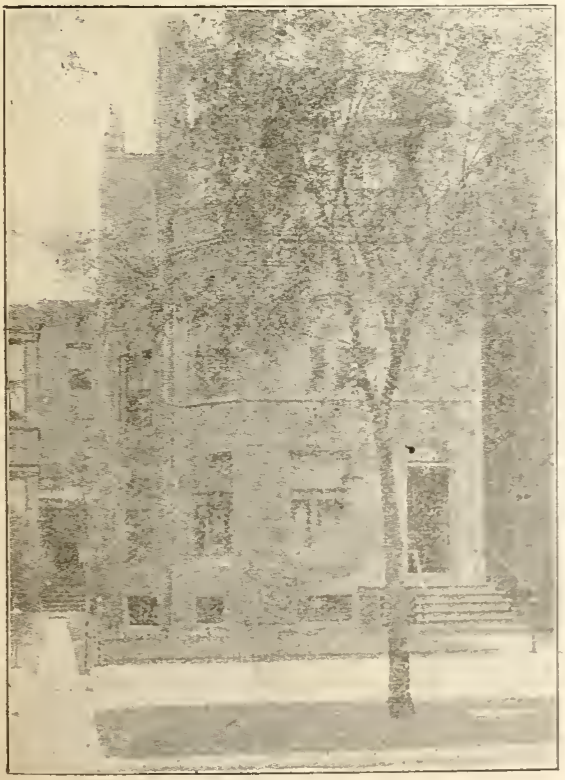

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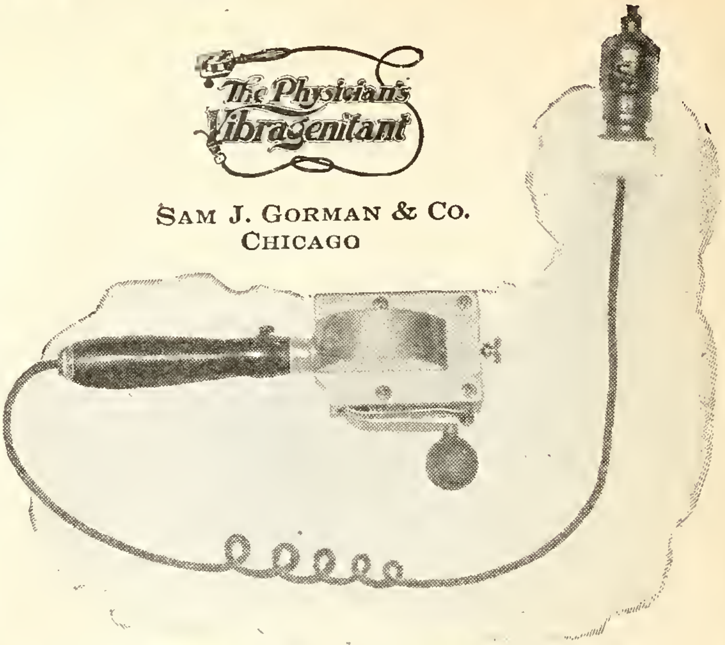

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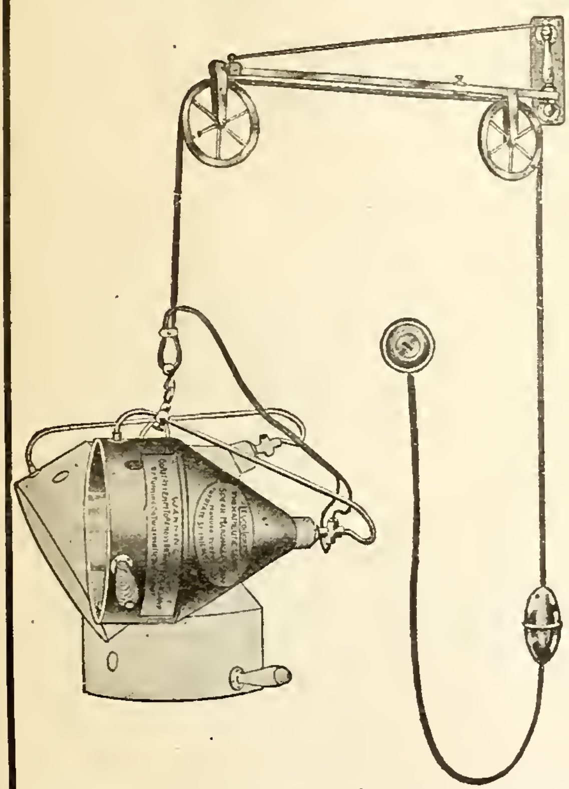

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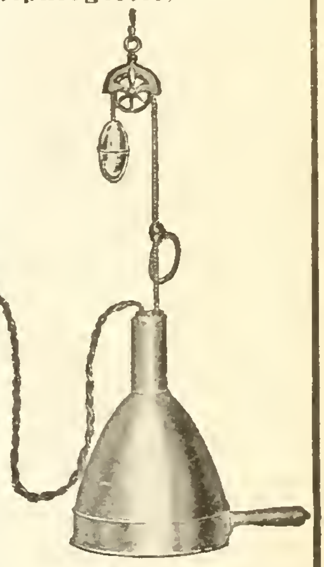

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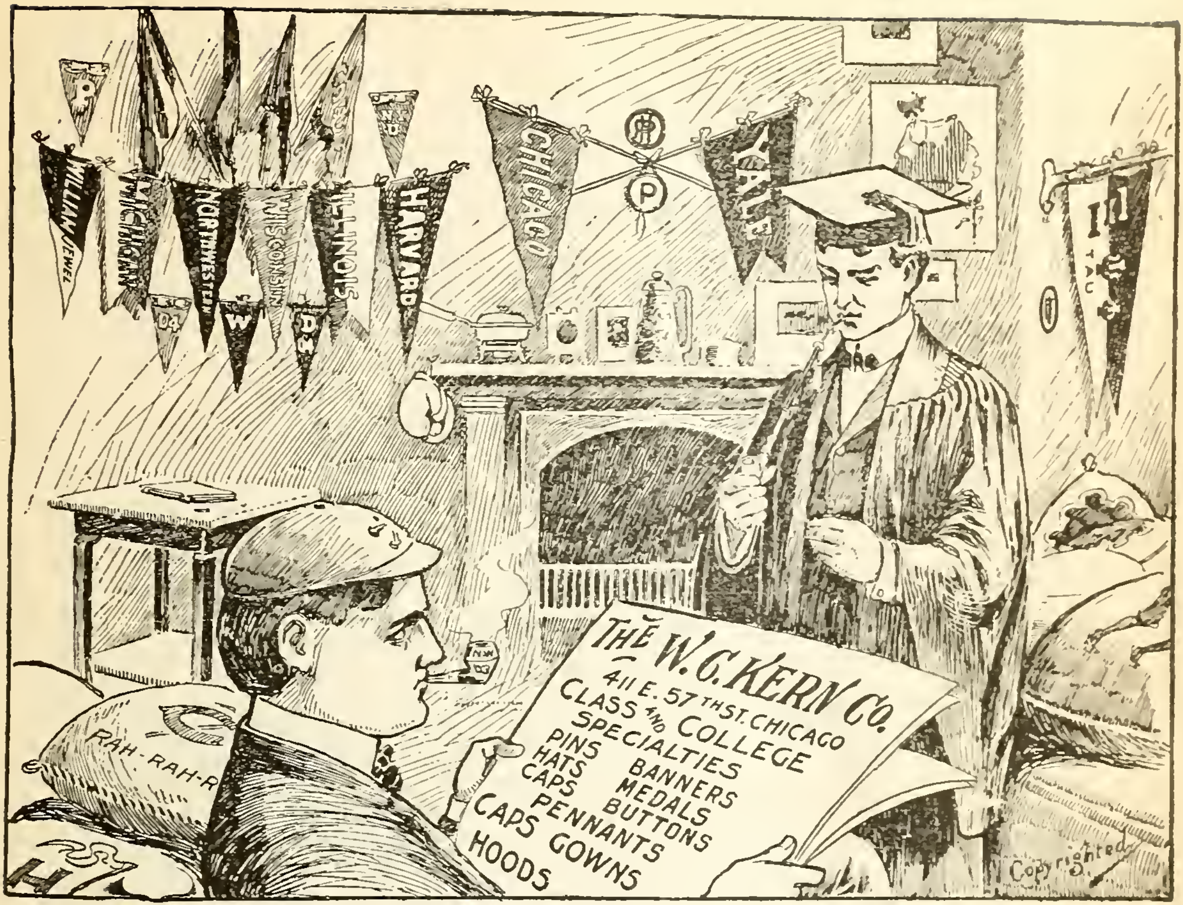

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THE PLEXUS
COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT OF THE
UNIVERSITY OF ILLINOIS,
CHICAGO.

VOL. XIII. BATAVIA, JAN. 20th, 1906. NO 1.

THE OFFICE OUTFIT AND ITS USES.

WILLIAM LINCOLN BALLENGER, M. D.,
Professor Olotogy, Rhinology and Laryngology, College Physicians and Surgeons.

The outfitting and the proper use of the outfit, for the practice of rhinology, laryngology and otology, is so largely a matter of personal equation and adaptation to the local requirements, that it is manifestly impossible to outline any hard and fast rules covering the subject. There are, however, certain fundamental principles bearing upon the question which may be applied to nearly all offices and the practitioners presiding over them. The young specialist and the general practitioner or surgeon is often quite "at sea" when he faces the proposition of outfitting his office so as to enable him to care for the nose, throat and ear cases applying to him for professional attention. The principles relating to outfitting an office for the treatment of the nose, throat and ear may be applied to any other department of medicine and surgery.

An endeavor will be made to outline the general facts bearing upon the subject hoping they may be of some assistance in solving these questions.

The treatment of the subject seems to require the consideration of the following propositions:

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1. The personality and the professional attainments of the surgeon.
2. The equippment of the office.
3. The use of the equipment for the comfort and cure of patients.

THE PERSONALITY AND PROFESSIONAL ATTAINMENTS OF THE SURGEON.

The personality or individuality of the special surgeon must of necessity largely influence the outfitting, and the use of the outfit of an office. In matters relating purely to the adornment of the rooms no suggestions will be made further than to say that the work-rooms of an office should be furnished with the idea that they are primarily work-rooms and not parlors. Not that adornment should be wholly overlooked, but that the controlling motive in the furnishing should be to provide for the treatment of the patients in the simplest, most direct and efficient manner possible. *Facility* should be the keyword in the arrangement of the office and its furnishings. The individuality and the judgement of the surgeon, and the general character of his patients should be carefully considered. Embarrassment on the part of the surgeon or the patient should be guarded against. It is often necessary to make prolonged topical applications, hence suitable arrangements should be made to give the patient privacy while this is being done. That is, another patient should not be brought into the presence of the first, but the first one should be placed in another room provided for the purpose before another is brought into the general treatment or consultation room. It is bad taste and bad business policy to crowd private patients into a treatment room as is done in a public clinic. It may make a "show" of business but it is an unwarranted and vulgar "show" at the best. The sensibilities, and I might add the legal rights, of the patients should be sacredly guarded. The surgeon has neither the moral or the legal right to reveal to one patient the physical ailments of another. Hence, when his practice has grown sufficiently large to make it necessary to have more than one patient in his treatment room at once, he should provide a retiring or secondary treatment room for their accommodation. This room should be provided with a couch as it is often necessary for the patient to lie down in order that he may receive the proper application of a local remedy, especially in the external auditory meatus, or, he may need to rest after a treatment or an operation. The secondary treatment room should also be provided with a cuspidor, preferably a fountain cuspidor, to be used especially after operations. Such mechanical devices as the electro motor vibratory massage, the pneumomassage for the ear, and other apparatuses that require several minutes for their use may be placed in this room. The secondary treatment room is one of the most important adjuncts to an office, as it facilitates the handling of patients without jarring their sensibilities.

The individuality of the surgeon will, of course, find expression in the details of arrangement, furnishings, and decoration of the treatment rooms, but he should constantly bear in mind that excellent service in an office, like excellent service in hotels and on the railways, is appreciated by those receiving the service. Ostentatious and superfluous service is both vulgar and unwarranted. Reasonable service, that which administers to the ordinary physical and mental comfort of the patients, is all that is required or that should be attempted.

Do nothing for show and everything for facility in handling, and giving comfort and relief to the patients. An office outfited with this maxim in mind will be attractive because it is well adapted to its purpose.

While, therefore, utility should be the controling motive in furnishing an office, the individuality of the surgeon may be expressed in many ways in the details of furnishing, and in the instrumentarium for the treatment of his cases.

PROFESSIONAL ATTAINMENTS.

The preparation of the surgeon for his work will have much to do with the equipment of the office. One illy prepared is inclined to over furnish his office and to make a show of mechanical devices for the treatment of his cases.

On the other hand one thoroughly prepared by study and experience is enabled to exercise wise discrimination in the selection of the instrumentarium and furnishings for his office.

Everything for facility and thoroughness; nothing for show. Bluff is a confession of unfitness. Thorough knowledge and a frankness of statement will inspire confidence and give an impression of mastery as no amount of bluffing will do.

THE OFFICE EQUIPMENT.

The principle underlying the equipment of an office has already been referred to in the preceeding paragraph, namely facility and thoroughness of handling and treating patients, with nothing for show, and everything with a purpose. The treatment and consultation rooms should be equipped for work rather than for entertainment. Gruesome objects, as skulls and pathological specimens, should be studiously screened from view. A modest amount of decoration of the walls, etc., is permisable in the consultation room, though it should be selected with care, and should be unobtrusive in its character.

The essential furnishings of the consultation and treatment rooms should consist of the following outfit:

a. A treatment and operating chair. b. A revolving stool for the surgeon. c. A treatment table or cabinet. d. A fountain cuspidor. e. A linen cupboard. f. A writing desk. g. A sterilizer. h. A revolving desk chair. i. Two small chairs. j. An adjustable bracket for the examination lamp, k. A selection of instruments and apparatuses for examinations, treatments and operations.

The Treatment and Operating Chair—The treatment and operating chair should have a revolving bottom.as suggested by Dr. Robert Levy, as it is desirable to turn the patient from side to side in treating his ears, and for other reasons as well. The bottom should be on a central screw-pin so that it can be adjusted to different heights for children and adults. The back should be so constructed that it can be lowered on a level with the bottom in case of faintness and in case it is desirable to operate in a prone position. An adjustable headrest should be attached to the back back of the chair. Chairs responding to the foregoing requirements are shown in Figures 1 and 2.

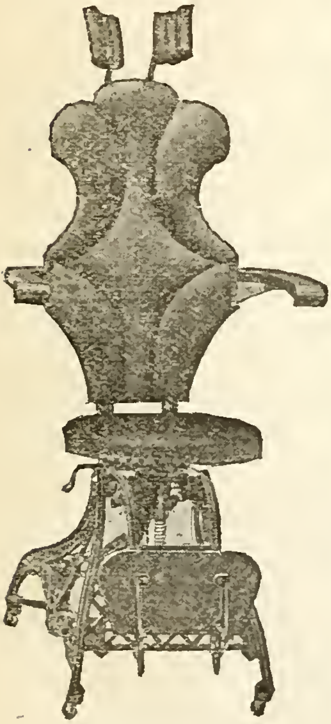

FIG. 1.

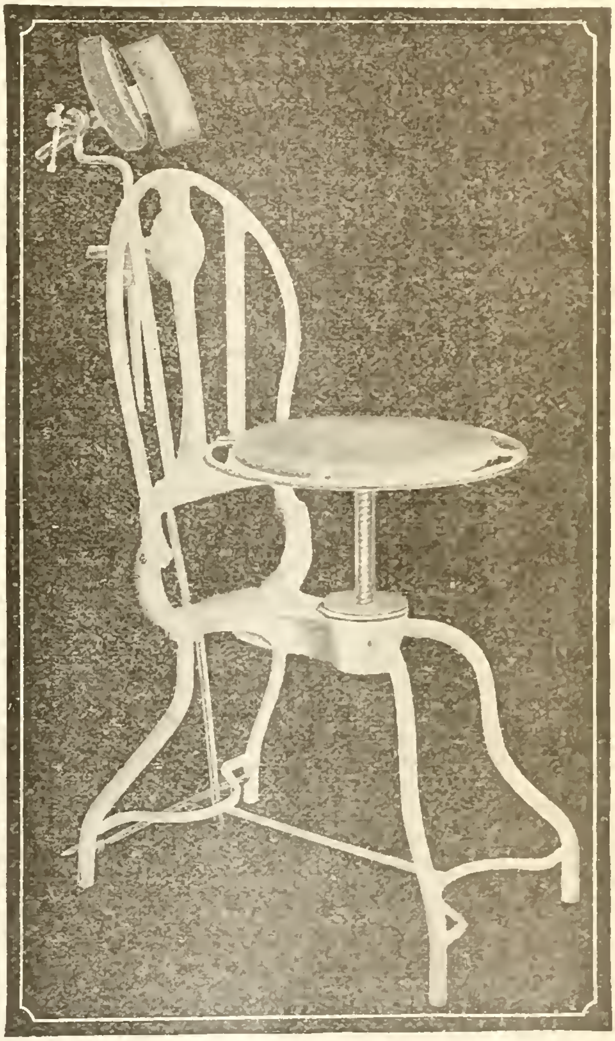

FIG. 2.

An ordinary chair may, of course, be used but in the case of faintness, etc., the work is greatly facilitated and the comfort of the patient assured if the chair is of the adjustable type described. It is rather awkward to have to carry a patient to a couch or even to support him to it if he is but barely able to walk. A chair with an adjustable bottom and back is, therefore, a necessary piece of furniture if facility and comfort are sought for.

The Assistant—The assistant may be a young physician preparing to become a specialist or be a young woman acting in the capacity of a general office attendant who may be trained to look after the instruments, and to assist in the operations, in addition to her other duties; or the assistant may be a trained nurse. Whatever else the servant may be, he or she should be the waiting servant to the surgeon. Such an assistant is of even greater importance than an associate working in an adjoining room unless the practice is very large, and even then the head surgeon should have some one to wait on him personally, and to wait upon his patients. The assistant relieves him of all responsibility as to petty details, and leaves his mind free to grapple with the larger probloms in connectton with his professional duties. This enables him to give all his time and energy to the larger interests of his patients as it relieves him from the worry and annoyance in connection with the petty external details in connection with the treatment of his patients. The proposition is a justifiable one, even from a finantial point of view, as the patients are given better service, a commodity most Americans are willing to pay for. Such an excuse need not, however be offered in favor of a personal assistant as it is justified on the higher ground that the patient receives better professional attention, The surgeon should recognize the fact that his office equipment should keep pace with hospitals where the element of service is such an important factor: System and improved service are fast becoming important factors in professional activity and success. The personal attainments of the surgeon are not becoming in any degree secondary, but on the contrary his efficiency is greatly enhanced, The more he can shift the miner details to other hands, the more time and energy he has left to devote to the study of the larger problems of his profession.

The question of a personal assistant should. therefore, receive early attention in the professional career of the otolaryngologic surgeon. Until an assistant is employed the treatment cabinet should be so constructed as to contain all instruments needed in office examinations, treatments and operations.

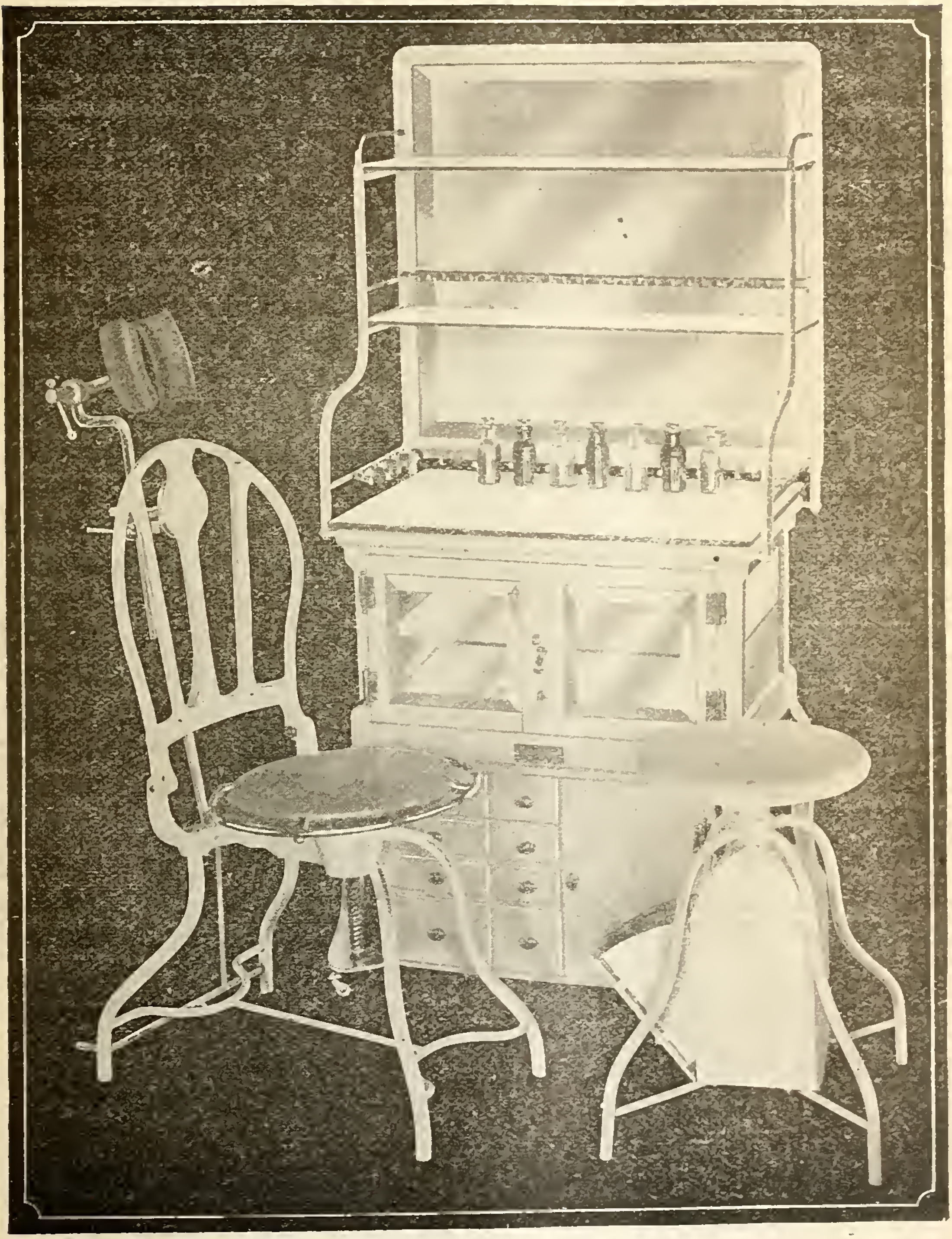

Fig 3

The Treatment Table or Cabinet—If an assistant is employed it is preferable to have the instruments in a separate cabinet adjoining the sterilizing room or corner. The treatment cabinet may then consist of a metal enameled frame with a plate glass top, or it may be a double decked table with tops or shelves about one foot apart. These tops afford ample room for the distribution of bottles containing remedies for topical applications, and for the instruments of examination and operation.

The treatment table or cabinet Fig. 3 is an important item of furniture. Its selection should depend largely upon whether the surgeon has an assistant or nurse to wait upon him. If he has such an assistant the cabinet need not be constrcuted to contain all his instruments as the assistant will bring the necessary instruments for each ease. If he does not have an assistant it is convenient to have the instruments in the cabinet within his reach

The Hot Water Basin—A most excellent addition to the table is a basin, set in the center of the upper glass top, with running hot water for rinsing instruments during the course of the treatments. If preferred the hot wrter basin may be attached to the standard for the fountain cuspidor, Fig. 4. The hot water basin does not take the place of a sterilizer, but is only intended to provide a convenient arrangement for rinsing in struments during treatments and operations. It is also convenient for cleansing and warming the laryngeal mirror during throat examinations.

It must be obvious to any surgeon who has had his own throat examined that the reintroduction of an instrument into the mouth without rinsing excites other than pleasant thoughts. No matter how sterile the tongue depressor when brought in, its introduction into the mouth the second and third time without cleansing,is, to say the least. disgusting to the patient.

A basin of running hot water is, therefore, an invaluable, and I might add, an indispensible adjunct to the office equipment. It is not indispensible in so far as the safety of the patient is concerned, as only his own secretions contaimate the instruments used, but if the fundamental principles of common cleanliness are to be recognized, it is a valuable and

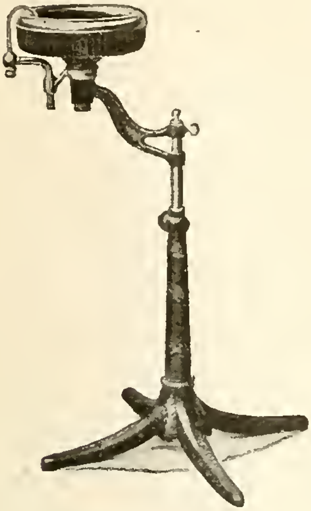

Fig. 4.

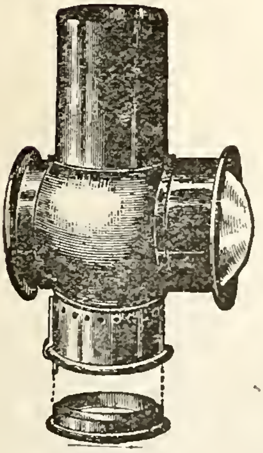

Fig. 5.

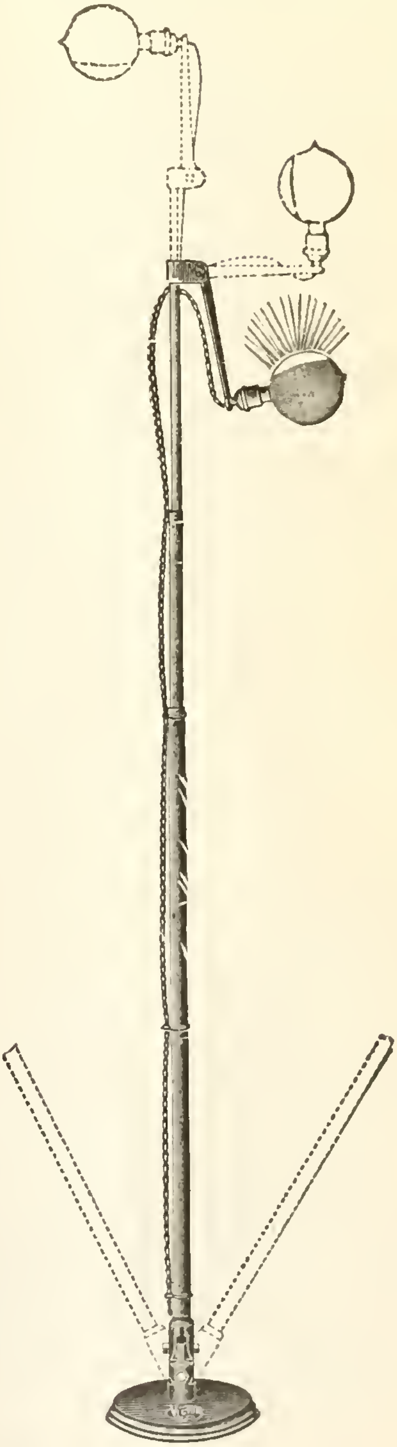

Fig. 6.

necessary office fixture. It is not a question of whether it pays; but rather one of common decency, and that always pays.

A bowl of antiseptic solution is not a substitute for a bowl of running hot water unless the bowl is refilled for each rinsing. The solution would soon become thick with secretions and detritus, and the introduction of an instrument into it for rinsing purposes would ba even more disgusting than no rinsing at all.

The Examination Lamp—The examination lamp may be a kerosene, gas or an electric lamp, preferably the latter, as it gives off less heat and requires less attention. The lamp may or may not have a hood with a focusing lense Fig. 5 according to the preferrence of the surgeon. Personally I prefer an electric lamp of 32 c. p. with a ground glass surface excepting a circular area on one side where the glass is clear (Fig. 6.) This affords plenty of illumination, is simple, throws out little heat and is inexpensive. Various other devices are shown in Figures 8 and 9.

The Wall Bracket—to support the lamp is an important item inasmuch as it is constantly used, and should, there

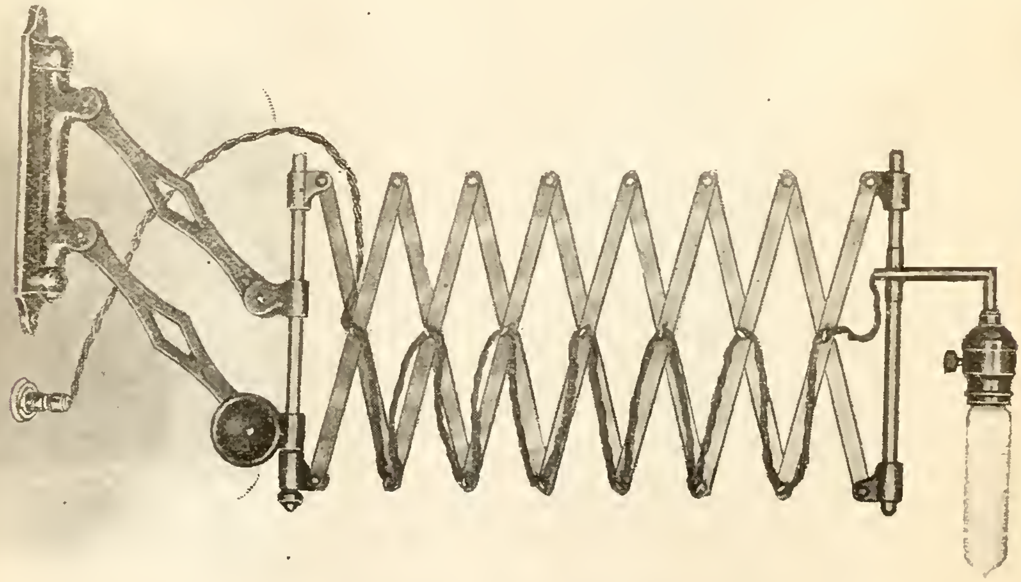

Fig. 7.

fore, be well constructed, and accommodate itself to the varying conditions under which it is used. That is it should be so constructed that the lamp can be raised and lowered and turned from side to side with the least trouble to the operator. It should be so well made that it will never get out of order, a state or condition into which many wall-lamp-brackets are prone to lapse. That shown in Figure 7 has proven quite satisfactory in nearly every respect.

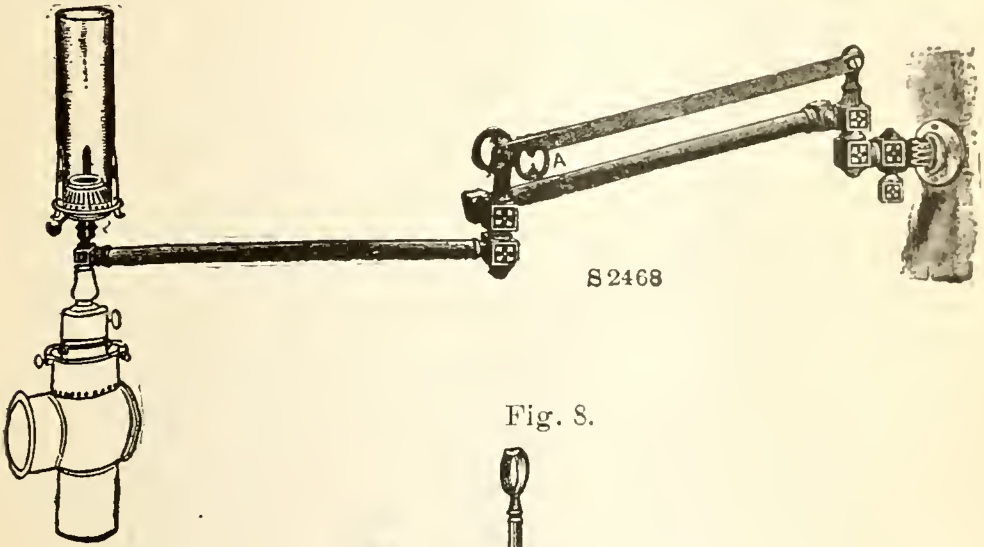

Fig. 8.

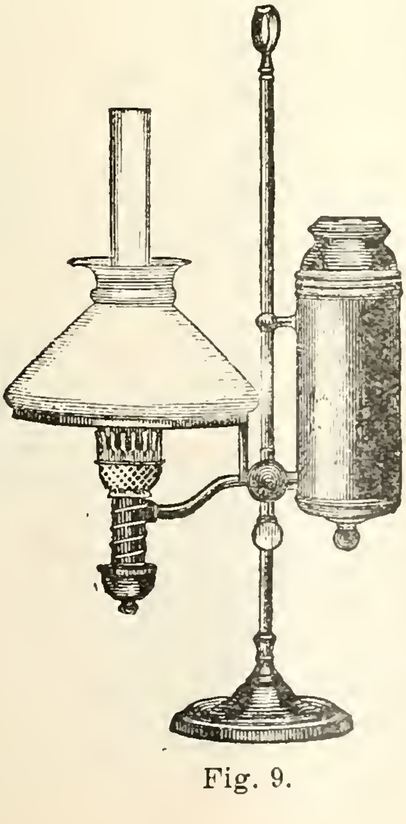

Fig. 9.

The Compressed Air Apparatus—The compressed air apparatus may be one of three types, namely, (a) a hand bulb, Fig. 10, (b) a tank pumped by hand or some automatic device as a water pump Fig. 13, 14, 15 or (c) a system of compressed air supplied throughout the building by means of pipes from a central compressed air tank. The latter is preferable when it can be obtained as it requires no attention whatever. A compressed air tank in the office automatically supplied by the means of a hydraulic pump is the next most preferable arrangement. A hand pump is inconvenient and entails considerable labor on the part of some one. The hand bulb is suitable when 8 pounds or less of pressure is required,

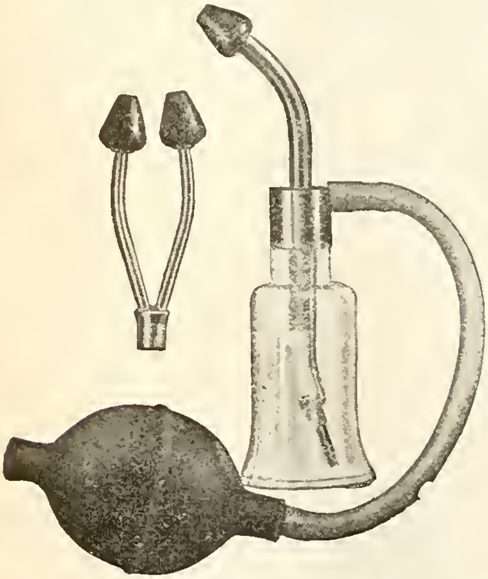

Fig. 10

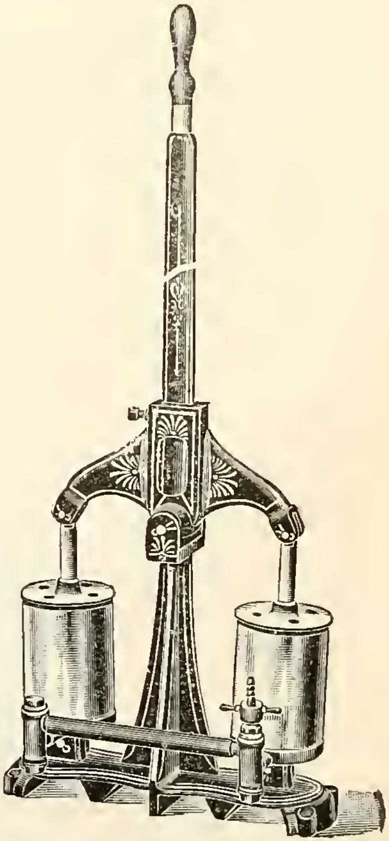

Fig. 11

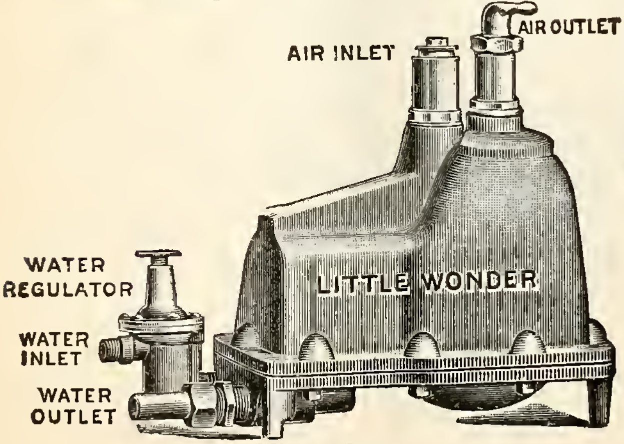

Fig. 12

An Accessory Regulating Air Tank—is a very convenient and valuable addition to the compressed air system, as it enables the surgeon to use only the amount of pressure required for various purposes. The nasal mucuous membrane for instance will not tolerate a higher pressure than 10 pounds with the Devilbiss spray tube, whereas, the pharynx will tolerate from 20 to 40 pounds pressure. A nebulizer requires a higher pressure than the spray tube, and in inflations of the Eustachian tube and middle ear the pressure required varies from 8 to 20 pounds according to the degree of obstruction present. Hence a regulating air tank such as Figure 12, Pynchons' is convenient if not a necessary apparatus. The tank should be connected with

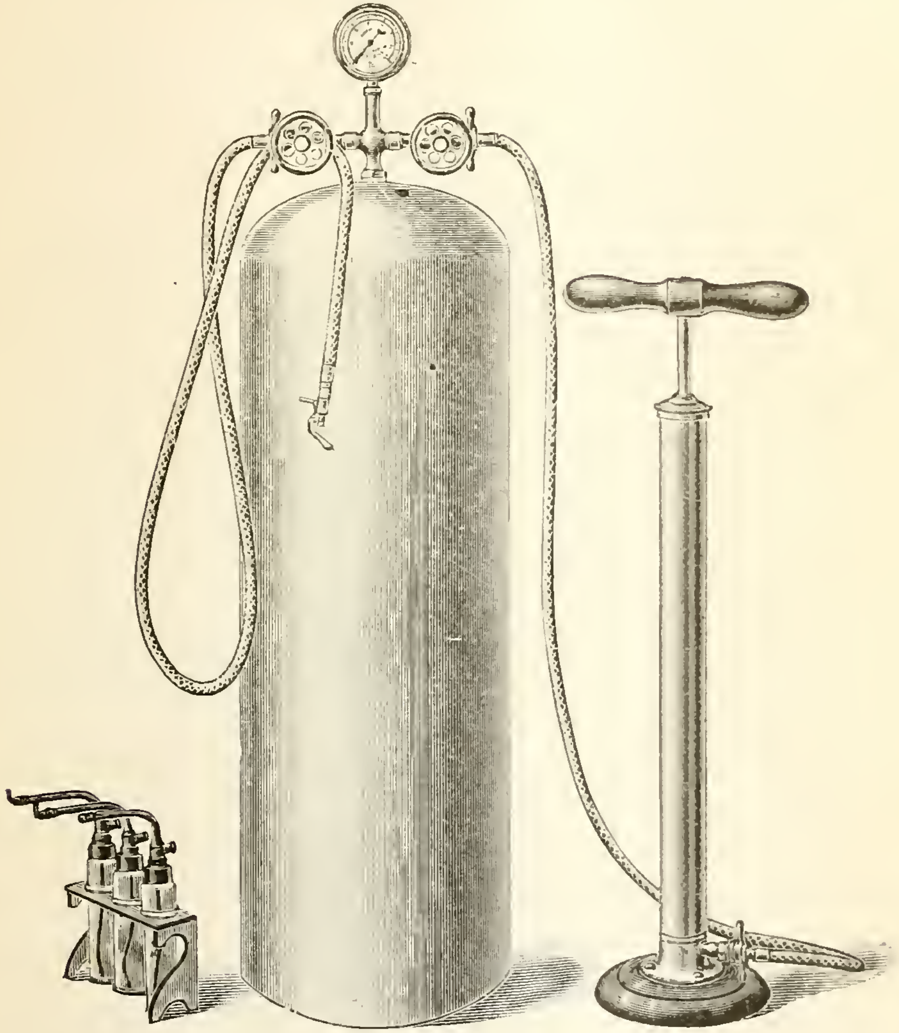

Fig. 13

the main reservoir tank and the compressed air turned on until the guage indicates the required pressure, say 20 pounds. If, at another time in the treatment but 10 pounds pressure is needed the escape valve may be opened until the guage indicates 10 pounds. There are many other ways in which such a regulating air tank may be used to advantage. The guage regulators on the market are not nearly so satisfactory as the regulating tank and are not recommended.

Massage of the Ear Drum—Pneumomassage or the massage of the eardrum by the alternate racefaction and condensation of the air in the external auditory meatus is accomplished by means of a hand pump as first devised by Deltanche of Brussels, Figure 13 or it may be operated by an electric motor as first devised by Chevelier Jackson, of Pittsburgh, and later improved by Pynchon (Fig. 14) in 1893. The pneumomassage of the ear-drum is recommended in deafness and ear noises of catarrhal origin, though its value has been greatly exaggerated. Delstanche was of such high repute, and was awarded the Levele prize for having designed the best instrument for relief of deafness, hence was adopted by aurists all over the world. Subsequent experience with it, and its modifications has not met the high expectations with which it was received. Pneumomassage has a place in aural practice, however, as by it the mucous membrane is brought into a more active and resistant state, and the labyrinth is also stimulated to greater functional activity by it. The osicles of the ear are rendered more morbile and transmit sound better after its application in a limited number of cases. Tinnitus is also occasionally improved by it. Such cases require rare skill and knowledge to determine what is best to do for them. The routine of inflation and of pneumo-massage lead to bitter disappointment except in a few cases. Acurate diagnosis is of first importance; then the treatment should be very carefully and intelligently prescribed. Not every case of deafness and tinnitus is improved by pneumomassage or any other type of massage.

Then, too, the massage apparatus, be it a hand or mechanically driven device, should be regulated to suit each case. The length of the piston stroke, the frequency of the vibrations, and the length of time the message should be used ase questions to be settled according to the peculiarities of each case and the experience and judgment of the surgeon. Massage per se is of no value as a therapeutic agent. It is only when it is "mixed with brains" that it be-

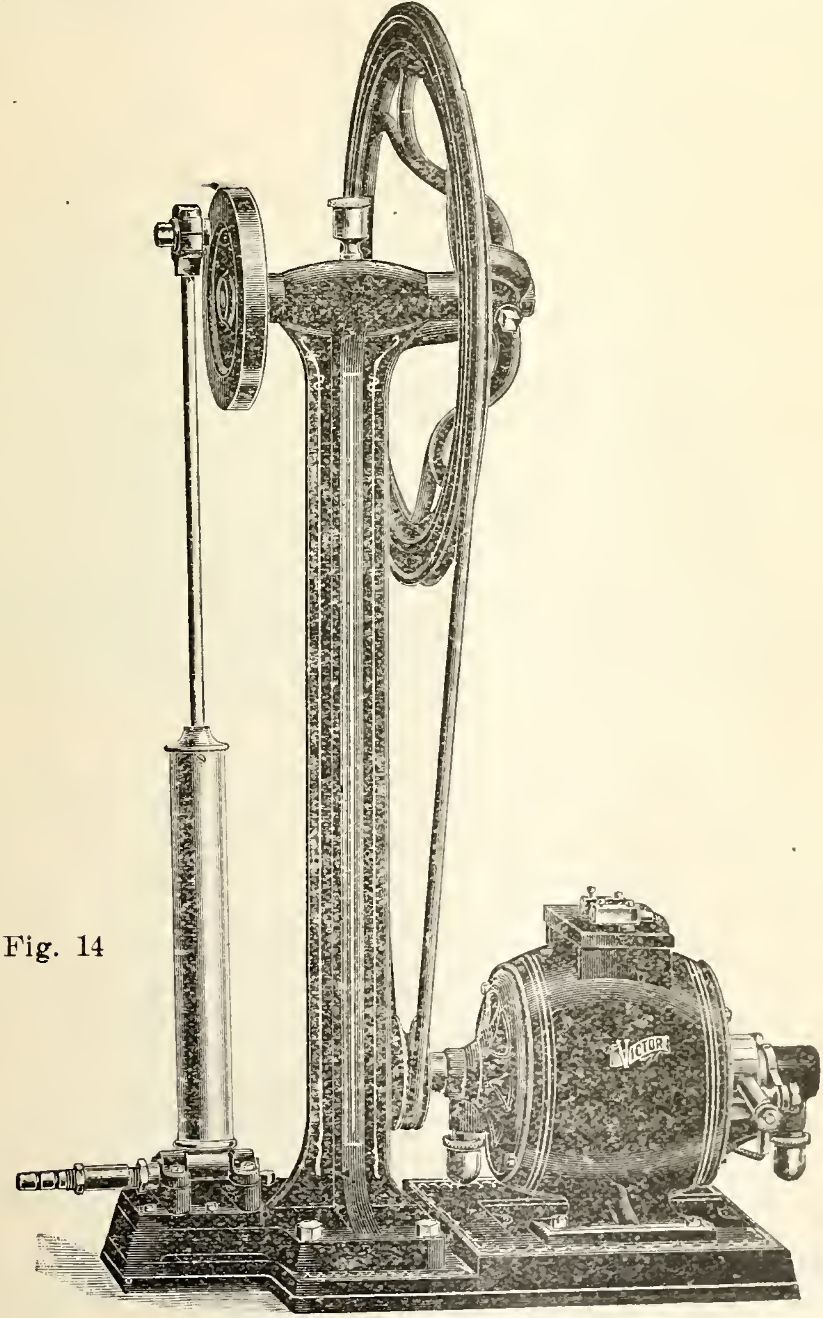

Fig. 14

comes of value. Surgeons who are uninformed and inexperienced are often tempted to furnish their offices with formidable looking mechanical devices with the belief that

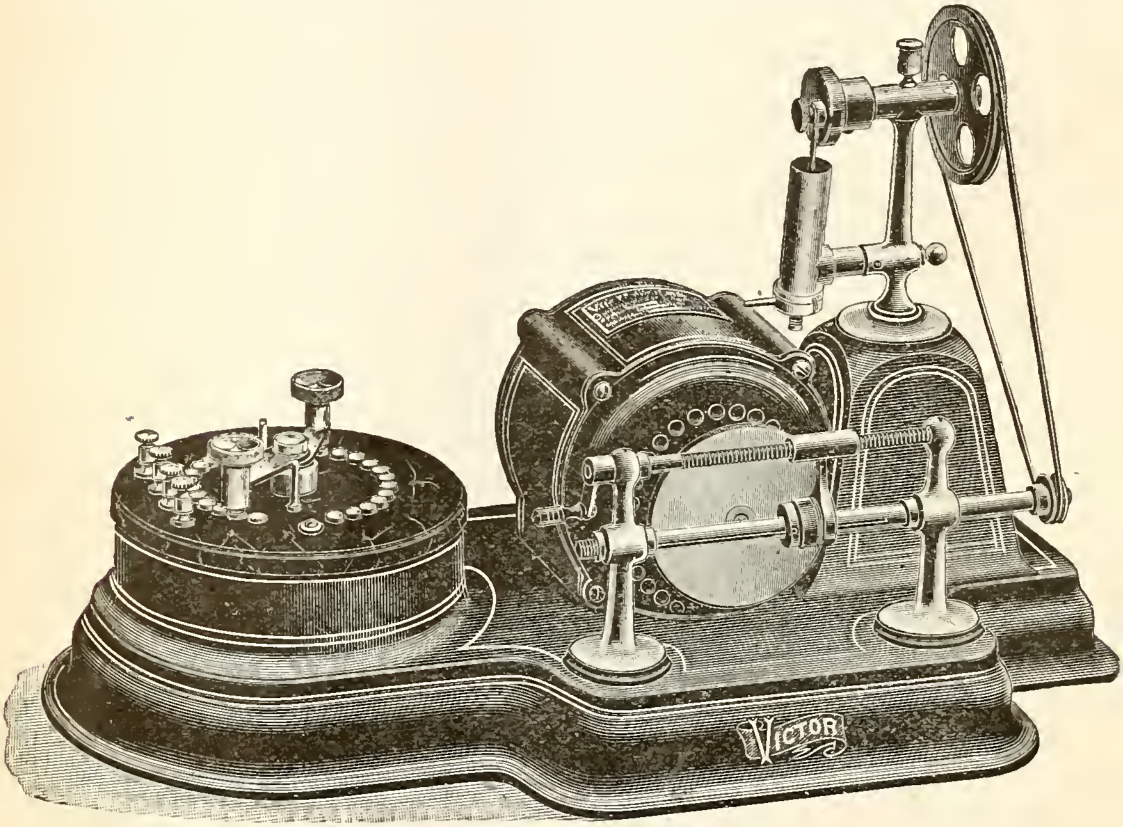

Fig. 15.

they are thus preparing themselves to adequately cope with disease. If they are intelligent and honest they soon learn that the "man behind the gun" is the first requisite for the attainment of success, even in medicine. I must confess that I have rarely observed marked improvement in the deafness and tinnitus that was clearly due to pneumomassage.

I have, however, found the hand apparatus of Delstanche of the greatest value as a diagnostic agent. With it the eardrum may be observed under compersion and rarefaction, points of adhesion and of atrophy being clearly demonstrated. When the air is rarefied in the meatus the eardrum is pulled outward, the points of adhesion being fixed while the balance of the membrane bulges outward leaving no room for doubt as to the condition of the middle ear. If there is an atrophic area in the ear drum it bulges like a blister boyond the balance of the membrane. If the otoscopic portion of the apparatus is provided with a magnifying lense, the texture of the eardrum is clearly demonstrated.

Aside from the diagnostic value of the Delstanche apparatus its greatest usefulness is in the treatment of the exudative forms of middle ear catarrh. It is in the protracted course of these cases that the adhesive processes form. The viscid exudate agglutinates the eardrum to the inner tympanic wall, becomes organized, and thus permanently fixes it to the inner wall of the middle ear cavity. The timely and intelligent use of the Delstanche Rarefacteur or other pneumomassage apparatues will prevent tbe permanent adhesion of taking place. The use of the apparatus should in the beginning be used daily with a slow, long stroke of the piston. After the inflammatory process has abated and the exudate is less viscid and less profuse the treatment may be gradually reduced in frequency and finally abandoned. The length of the stroke (force of the suction) should be gradually diminished as a too long continuedst retching of the ear drum will render it abnormally lax from pressure (suction) atrophy.

Another device for the massage of the ear-drum consists of a glass tube partially filled with metalic mercury Fig. 16. The open end of the tube is shaped to fit the external meatus, and when not in use is closed with a rubber cork. It is very simple in its application, the uncorked end being placed firmly in the external meatus, and the patient instructed to move the head from side to side allowing the mercury to drop against the eardrum. This procedure is repeated several times at each daily seance. According to Dr. Joseph Beck, its originator, the rationale of its use consists in the impact of the mer-

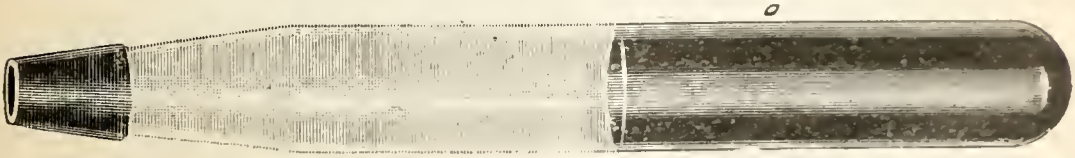

Fig. 16.

cury against the malleus and ear drum, which transmit the force to the entire ossiclar chain and to the labyrinth as well. This stimulates the functional activity of these physiologic structures ond improves the condition present. Dr. Beck has found its chief usefulness in the relief of the tinnitus rather than the deafness, a fact which to my mind is significant. That is, the mecanical shocks thus applied to the ear drem and transmitted to the labyrinth, affect the circulating system of the labyrinth, improves the nutrition and increases the local leucocytosis. These changes affect the labyrinth in such a way as to relieve the tinnitus.

Dr. Beck has also noted that the improvement was transient, lasting only a few days or weeks after the discontinuance treatments.

The Electro Cautery. Fig.14. So much has been said within the past six years about the use, or rather the uselessness of the electro cautery that I feel impelled to rise in its defense. It is still a very useful apparatus, and an office is incomplete without it. It is true that it is too frequently used, indiscriminately and unintelligently 'but it still fills a place of great usefulness in the armamentarium of the specialist. Its usefulness in turgescent rhinitis has been greatly abridged by the improved methods of operating upon the nasal septum (notably the submucous resection of the septem) but even in this condition it still affords a means of temporarily overcoming the excessive welling of the inferior turbinated bodies. It also affords a valvable means for treating chronic granular pharyngitis with lymphoid enlargemerts along the latteral and posterior walls of the pharynx. Still other uses could be described, but as they are mentioned in connection with the respective diseases the two citations are enough to show that the electro cautery apparatus is not an obsolete instrument.

The Spray Tubes. The spray tubes and the medicated fluids used in them have also come under the ban as therapeutic agents. There was a time when the rhinologist and laryngologist was called the "spray specialist" more derisively the squirt-gun doctor." Whatever grounds there may have been for these characterizations of the rhinologist and laryngologist, it is certain that they do not apply to the specialist of the present time. Nearly all special surgeons at the present time recognize the futility of attempting to cure diseases of the nose and throat by means of medicated water and oil. The etiology of the catarrhal and supperative inflammations of the nose and throat is better understood and the ideas concerning their treatment has undergone corresponding changes. It is being more and more recognized that mucous line cavities are subject to catarrhal and infective inflammation somewhat in proportion to the degree of obstruction to their drainage and areation. This one factor is probably the most significant etiological factor emphasized in recent years. Goodale and Jonathan Wright emphasize it in reference to the crypts of the tonsil and Pynchon in reference to both the tonsilar crypts and the inflammatory diseases of the nose. Heath has recently empasized the same truth in referencn to the mastoid antrum and the middle ear. (See Heath's Mastoid Operation, pp.—— also the Clinical Anatomy of the Nose, and the Inflammatory Diseases of the Nose and Accessory Sinuses).

In view of this more modern conception of the etiology of the inflammatory diseases of ear, nose and throat, surgical procedures have largely replaced the topical medical and caustic applications once in such popular favor. The spray or atomizer occupies a less conspicuous place than it did a few years ago. It still offers a useful means for using cleansing and aromatic solutions and indeed some remedies of real therapeutic value. (Fig. 17. Devilbis spray tubes and nebulizers). An array of fifty or a hundred spray bottles, each with a different medicated and perfumed solution, is no longer a necessary part of an office outfit; indeed such an array of spray formulæ is in some ways a confession of antique, if not altogether obsolete ideas of medical practice.

The Mechanical Vibrator. Some years ago the mechanical vibrator was mentioned as acting favorably upon tinnitus and deafness, but its more general use by English and American Otologists has demonstrated its comparative uselessness for these purposes. At that time it was stated that when applied over the spinal column it seemed to act favorably upon the ear. I have tried it faithfully for this purpose on a number of cases, with no appreciable effect. Its chief field of usefulness is in reducing the swelling and sensitiveness of the glands in the neck, and the headaches accompanying the various sinus affections. But even these conditions are better and more pleasantly ameliorated by other means. The vibratory or mechanical massage increases the lymphatic flow, improves the nutrition and increases the local leucocytosis. Hence it relieves pain and tenderness, and reduces the activity of an inflammatory process provided it can be applied to the part. In this respect it acts upon the principle of Bier's constriction treatment, the Sonderman negative pressure treatments and the leucodescent light treatment; that is they each increase the local leucocytosis, improve the local nutrition and diminish the inflammatory process.

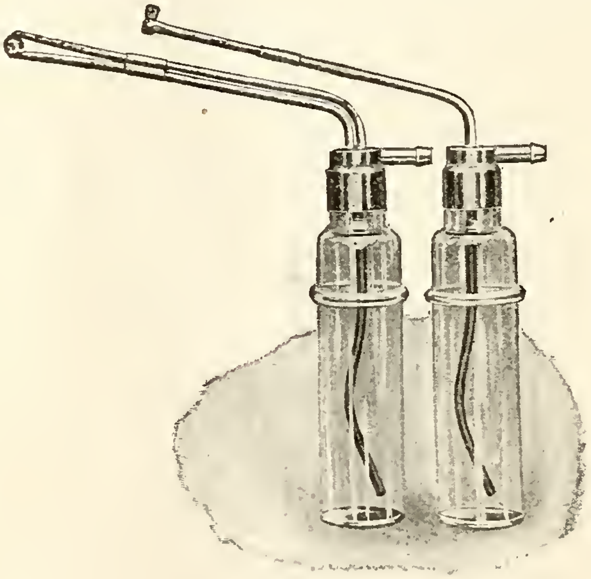

Fig. 17

The Sondermann or Negative Pressure Apparatus. This apparatus consists of a device whereby the air pressure is reduced in the upper air passages, notably the nose and accessory sinuses. (Fig. 18. Pynchon's Apparatus).

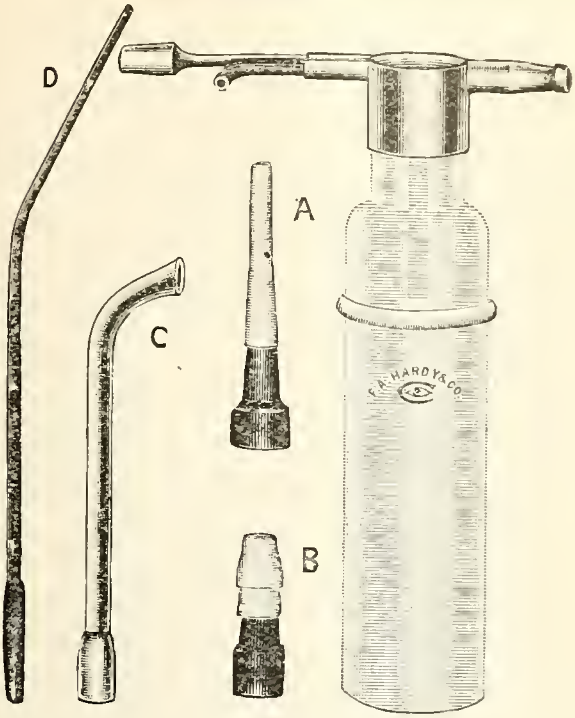

Fig. 18

The negative air pressure within the nose and accesory sinuses facilitates the discharge of the secretions and purulent accumulations, increases the local nutrition and leucocytosis, and acts favorably upon the inflammatory process. Its chief field of usefulness seems to be in the treatment of the subacute inflammations of the sinuses, though it exerts a temporary, favorable influence upon old chronic cases.

The Leucodiscent Lamp. The leucodescent light consists of a single incandescent globe of 500 c, p., around which is placed a reflector 18 inches in diameter. The reflector focalizes the rays of light so that their penetrating power is increased. The therapeutic properties of the leucodescent light lies in the heat and chemical rays. Experimental laboratory work has shown that the leucodescent light is rich in blue violet rays, in addition to the light and heat rays. The blue violet are very active chemical rays and affect the tissue metabolism and destroy pathogenic bacteria. Dr. Frank Wynecoop has demonstrated in his laboratory that a ten minute exposure of cultures of rarious pathogenic bacteria are destroyed, and what is more to the point that the spores are also destroyed. Boiling water will destroy the bacteria but not the spores. Clinically I have found the leucodescent lignt of value in inflammatory and infectious processes. For instance I have seen cases of old antrum empyæma with granulations cease discharging under its influence. The pain, tenderness, and swelling likewise disappeared. In no case have I seen a cure by this mode of treatment. In acute sinnitues I have seen marked and rapid improvement speedily follow its use. Infective inflammations of the mastoid wound rapidly (3 days) clear under its use three times daily. Cervical adenitis usually responds readily to the rays Pain of almost any origin is relieved and in many instances stopped by it. The pain of sarcoma is almost invariably checked. It seems to exert a slight control over oozing post operative hemorrhage. Its power to increase tissue metabolism and local leucocytosis, reduces the bacterial acitivity. The latter is probably due as much to the increased leucocytosis as to the bactericidal property of the rays. While they are bactericidal when applied constantly for 10 minutes at a distence of 13 inches in the laboratory, they are probably not bactericidal at 18 inches for a few moments at short intervals as must be done in their clinical application. The rays are too hot to be tolerated constantly at close range, hence the effects produced in laboratory experiments can not be duplicated. (Fig. 23.

Experimental research has also shown that lamps of less candle power are correspondingly poor in the blue-violet rays. the 50 c. p. lamps having scorcely a trace of them. It has also been shown that ten lamps in a groupe have identically the same quality of rays as a single 50 c. p. lamp and is in no way similar to that possessed by a 500 c. p. lamp. I, therefore, recommend that a single 500 c. p. lamp be chosen as it is the one possessing greatest value as a therapeutic agent.

To be Continued,

ACUTE UNILATERAL SEPTIC PYELONEPHRITIS.

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During the past seven or eight years, surgeons have been greatly interested in a class of cases which had been previously regarded as beyond the scope of operative treatment. Up to 1899 one finds a few scattered reports of cases of acute unilateral pyelonephritis of the suppurative type which were operated upon. This condition was known as "surgical kidney" by our medical forefathers, because it so frequently followed operations or manipulations upon the urethra or the bladder, or was a result of infection of the viscera which could almost be invariably found upon the autopsy table. With the introduction of aseptic methods in our operations upon the lower urinary passages the number of cases derived from this source diminished. It was observed however, as a not infrequent complication of the cystitis accompanying calculus, enlarged prostate, and gonorrhea, although even at this time it was thought to be so uniformly bilateral that any operative relief for its symptoms was contraindicted.

Gradually the attention of the profession was drawn to the fact that acute symptoms of a septic character accompanied by localized tenderness, pain, and often palpable enlargement of the kidney, were due not only to infection ascending from the lower urinary passages, but that there were many cases which could not thus be explained. It was found that the organisms in the remaining cases must undoubtedly have been carried to the kidney through the circulation as metastases from distant foci of suppuration. The discovery thus was made and confirmed by a large number of surgeons that these septic lesions of the kidney, whether urogenous or hematogenous, were not only unilateral in the the early stages, but that the cases with the severest septic symptoms yielded promptly to nephrotomy or nephrectomy.

One of the earliest writers to call attention to these unilateral septic renal conditions was Goodhart, in 1868. He found[1] at 130 autopsies upon cases of "surgical kidney" that the lesion was present upon one side in 14.5 per cent. In an additional 71 cases collected from the literature he found 12 (16 per cent.) unilateral. In 1883, Singer reported a case of unilateral renal suppuration immedietely following typhoid fever. The kidney had been severely injured eighteen years before. One of the most interesting contributions to the literature of the subject is that of Robeft F. Weir.[2] The case was one in which he performed nephrectomy in a young man, aged twenty-five years, who had a severe urethrocystitis three months previously. The chief symptoms were fever of a remittant type (to 105°) and chills. The colon baccilus was found in pure culture in the extirpated kidney.

In 1895, Woodward[3] reported a case in which he had performed nephrectomy for an unilateral septic nephritis. The first case reported herewith was published in August, 1899.[4] It is superfluous to mention in detail the articles that have been written since 1899. Excellent reviews of the entire subject have been published by Klink,[5] in 1893, and by Wagner,[6] in 1904. We now know that cases of acute unilateral pyelonephritis with severe septic symptoms have a definite etiology and pathology, and that they can be recognized and are amenable to surgical treatment.

Etiology. The cases are best divided into the two chief modes of infection, urogenous and hematogenous.

1. *Urogenous Infection.* The various modes of origin of this form are:

(*a*) Cyststis. This is one of the most frequent causes of an ascending infection. The cytitis is usually of a chronic type and associated with retention of urine. For this reason the renal condition is more frequent in males, since the causes leading to stagnation and retention of urine are more frequent, owing to the presence of an enlarged prostate or of a stricture of the uretha. The acute pyelonephritis of pregnancy and of the puerperium, which is often so difficult to recognize, can be explained upon the basis of the cystitis frequently present and so greatly favored by the stagnation incident to these conditions.

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[1] Guy's Hospital Reports, vol. xix.

[2] Medical Record, September, 16, 1894.

[3] Annals of Surgery, 1895.

[4] Chicago Medical Record, August, 1899.

[5] Centralblatt der Mittheilungen aus den Grenzgebeiten der Medizine und Chirurgie, 1903.

[6] Schmidt's Jahrbucher, 1904.

(*b*) Hydronephrosis and nephrolithiasis. Both of these renal conditions favor infection of the parenchyma, through the obstruction to the overflow of urine which they cause, added to the micro-organisms so often present in these conditions.

(*c*) Unclean ureteral catheterization.

(*d*) Ureteral fistulae. Hence there is no resistance to the transmission of infection to the kidney.

2. *Hematogenous Infection*: This arises as follows:

(*a*) As a complication of subcutaneous injury of the kidney. Israel called attention to this form of acute pyelonephritis in his text-book, in 1901, and George E. Brewer[7] has recently contributed some valuable clinical and experimental observations, eleven cases of his own, and two of Joseph A. Blake, of acute pyelonephritis. Eleven of these occured in women and two in men. There was a distinct history of injury in two and previous disease in one. In five cases there was recent history of some febrile disorder. In order to confirm his view that an injury to a kidney is frequently followed by acute unilateral septic infarcts he bruised the kidney and injected hypodermically varying amounts of cultures of organisms, such as Staphylococcus pyogenes aureus, Streptococcus pyogenes, Baccilus coli communus, Baccilus typhosus and Pneumococcus. Of sixteen animals which, in addition to the inoculation, received an injury to one kidney, five showed no lesion, or only hyperemia and parenchymatous degeneration. Two of these animals died within twenty-four hours of acute septic intoxication. Of the remaining eleven, all developed distinct surgical lesion of the kidney. In eight the lesions were unilateral, and limited to the injured kidney. In three, the lesions were bilateral. In one of the bilateral cases the lesions were practically equal in extent and in severity. In the other two, the lesions in the uninjured kidney were mild in character, and undoubtedly would have subsided under favorable conditions. The renal lesions produced by these experiments were practically identical with those observed in my clinical cases. They showed considerable variation in number, extent of renal destruction, and degree of resulting toxemia. While these experiments have not been sufficiently numerous nor varied to investigate all of the causes which might direct a give blood infection toward one kidney, they demonstrate in a very conclusive manner that injury to a single kidney, whether produced by trauma, the presence of a foreign body in the pelvis, or an acute obstruction of the ureter, certainly acts as a strong predisposing factor in the evolution of a surgical lesion of that organ.

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[7] Surgery, Gynecology and Obstetrics, May, 1905.

(*b*) As a result of catarrhal conditions of the intestine or as a complication of stagnation of the fecal current. Baginsky and Heubner have called attention to the frequent occurance of septic renal couditions due to the colon baccilus as a metastasis of these organisms, following gastrointestinal disturbances in children.

(*c*) After the acute infectious diseases septic embol are very likely to lodge in healthy and in hydronephrotic kidneys.

(*d*) As a metastasis from furuncles, tooth infection, or any form of peripheral suppuration. Hessert has recently reported a case of acute pyeloneyhritis following a carbuncle on the neck, and Israel has observed several such cases.

(*e*) As a metastasis from the lower urinary passages or from the opposite kidney in consequence of transmission of the organisms through the circulation, and not by means of an intervening ascending infection. This form is very prone to develop after urethral or vesical manipulation.

PATHOLOGY. The most satisfactory division of the various conditions in which the kidney is found either at autopsy or during life is that given by Israel.[8]

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[8] Nierenchirurgie, 1901.

1. *Ascending Catarrhal Pyelonephritis.* In these cases the mucosa of the pelvis is swollen and there is marked catarrhal inflammation of the collecting tubules of the kidney.

2. *Multiple Miliary Foci of Suppuration.* This is the most frequent and typical form. The kidneys removed in both of my cases belong to this group. The small foci of suppuration are irregularly scattered through the entire kidney, the cortex being especially involved. The foci, as in my second case, may be almost exclusively confined to one pole of the kidney. The cortical foci project usually above the level of the surrounding parenchyma. They are usually arranged in groups, each abscess being surrounded by a zone of intense hyperemia. On section one sees many streaks of purulent softening extending from the hilum to the cortex and radiating in a fan-like manner from the pelvis.

3. *Hyperacute Form.* The course of the disease is so rapid that there is no time for the formation of foci. Examination of such kidneys shows only most intense congestion. At times there are some ecchymoses and turbidity. The entire cut surface is oedematous.

4. *A Few Large Abscesses.* This form is rare.

6. *Gangrene of the Pelvis and Gangrenous Foci in the Parenchyma.* This variety is very rare and its etiology unknown, but it is probably hematogenous.

A perinephritic abscess may result from the second, fourth, and fifth forms.

The organisms which may produce this condition are the Baccilus coli communis, Gonococcus, Staphylococcus aureus and albus, and Streptococcus pyogenes, According to Rovsing any urine decomposing organism can cause the disease. At times it may occur during the course of a chronic pyelitis of hematogenous origin, or as a complication of tuberculosis of the kidney as a mixed infection,

SYMPTOMS AND DIAGNOSIS. The symptoms vary according to the intensity of the infection. In general, one may speak of two classes of cases: The first class is the one in which the kidney is but little suspected to be the cause of the symptoms. In this variety the clinical picture is that of an acute, general septic intoxication. The principal symptoms are repeated chills, high temperature usually remittent, but sometimes continues, rapid pulse, marked prostration, and nervous symptoms, such as restlessness, delirium, and stupor. There is usually marked leukocytosis· In all probability some cases which have been spoken of as cryptogenetic septicopyemia belong to this group, in which the general septic symptoms predominate. The local signs of a kidney infection are so slight that they are frequently overlooked, unless a very careful physical examination is made to exclude other causes of sepsis. These cases are often so acute in their onset (according to Brenner,) and so rapidly progressive in their septic manifestation, that death may ensue before any renal or urinary charges show themselves. In the diagnosis the history of previous infection is of aid, as also that of some subcutaneous injury in the kidney region. The urine shows a few pus cells, or many contain nothing abnormal.

In the second class of cases the diagnosis is not so difficult, since the local signs predominate from the first and are accompanied by symptoms of septic intoxication. These local signs are: (*a*) Severe pain, most frequentiy located over the affected kidney. In the very acute cases this pain may not be so accurately localized, but referred only to the side of the abdomen corresponding to the affected kidney. When the right kidney is involved the differential diagnosis between this affection, appendicitis, gallstones, etc., is often very difficult. The onset is often as sudden as in any of the affections mentioned. (*b*) A second symptom of considerable importance is marked tenderness on pressure in the costovertebral angle of the affected side. (*c*) A third valuable sign, well-marked in the second of my cases, is rigidity of the abdominal muscles in the neighborhood of the affected kidney. In some cases one can palpate the kidney as enlarged and extremely tender. This sign was of great value in my second case as a differential diagnostic sign serving to exclude other acute suppurative diseases of the right side of the abdomen. The urinary symptoms are decrease in quantity of urine and the presence of pus in variable quantity. The general symptoms are quite characteristic, and are similar to those observed in the class of cases in which the general septic symptoms predominate over the local inflammatory ones. Chills occur at frequent but irregular intervals and are followed by a marked elevation of temperature. The fever is usually of a remittant type, but may be continuous.

The most characteristic symptoms are: Location of the pain, tenderness, and rigidity over the affected kidney, accompanied by pyuria, chills, fever and remittant temperature. Such a unilateral septic process may occur in a kidney which has been the seat of a previous chronic condition, such as calculus or tuberculous pyelitis. One of the local signs to be especially mentioned is the presence of severe renal colics. These are due, as Israel has shown, to the extreme congestion of the kidney. The colics may simulate stone to such an extent that they are accompanied by anuria. The differentiation can readily be made from the graver septic symptoms present in an acute unilateral septic nephritis. If such a septic process occurs in a displaced kidney the differential diagnosis is almost impossible.

The following two cases will serve to illustrate this form of acute unilateral septic nephritis:

Case I.—Mrs. B , aged twenty-six years, was admitted to St. Luke's Hospital June 4, 1898, on account of laceration of the perineum, cystitis, and suspected renal calculus. She stated that since the birth of her child (seven months previously) she had suffered from severe pain on urination, accompanied by the passage of calculi varying in size from a pea to a bean. Before the expulsion of these she had sharp pains in the region of both kidneys, with tenesmus and the passage of large clots of blood. There was intense burning and smarting on urination. The urine upon admission contained triple phosphates, pus, red blood corpuscles and considerable albumen.

An exploratory nephrotomy performed in July, 1898, by

Dr. W. H. Allport, resulted negatively. A little later the urethra was dilated, some small whitish particles were removed, and was followed by irrigation with silver nitrate. She was discharged on August 16, 1898, after her temperature had been normal for some time. The urine at this time contained a few pus cells; she still had incontinence, and occasionally passed pinhead-sized phosphatic calculi.

On August 24, 1898, she was readmitted, with a temperature of 105 4°F., and a pulse of 140. She stated that for the preceding four days she had suffered from excruciating pains in the region of the left kidney, which radiated down the ureter to the bladder and were accompanied by repeated chills and high fever. Examination revealed marked tenderness over the left kidney and very marked muscular rigidity in its vicinity. The urine contained a large number of pus corpuscles.

The diagnosis being made of pyonephrosis with probable renal calculus, I immediately performed an exploratory operation. The kidney was found adherent and greatly enlarged. Upon being brought in the abdominal wound, the many groups of miliary abscesses with hyperemic zones so characteristic of an acute pyelonephritis were seen scattered diffusely over the cortex. Nephrectomy was performed. Upon the following day the patient's temperature rose to 105°, and the urine was much clearer. The amount passed in twenty-four hours was 800c.c. Upon the third day after operation she was removed to the isolated ward, on account of a faucial diphtheria; here she received 2000 units of antitoxin.

On her return to the surgical ward, on September 24, 1898, her temperature was normal; in twenty-four hours she passed 660c.c. of urine containing pus and a few granular casts. The extirpated kidney showed many groups of miliary abscesses in the cortex, especially just beneath the capsule. On section yellowish streaks of purulent softening were seen extending from the apices of the pyramids toward the capsule. There were no calculi, but the pelvis was deeply congested and filled with pus.

The patient was operated upon after this twice during the next year: once for an ovarian cyst. and the second time for chronic recurring appendictis. The latter operation was performed by myself. At this time (August, 1899,) one year after the nephrectomy, her urine contained no pus; she suffered from incontinence during the day, but not at night, She passed from 46 to 48 ounces in twenty-four hours, and had gained twenty-two pounds in weight.

Case II.—Fred J. was seen in consultation with Dr. H. L. Baker, on October 27, 1905. He stated that about eighteen months previously he had been struck in the back with some degree of violence by a street car He never felt well since that time, but had no definite symptoms, until about six weeks before my first seeing him. During this period he had severe pain in the back, fever and chills. The cycles of recurrent chills and fever would last about a week; that is, he would have chills for a day, then high temperature, which gradually diminished, until at the end of four or five days he felt much improved. Then the chills and fever recurred. While in the hospital his temperature dropped from 104° to normal in three days, After being normal for twenty four hours it suddenly rose to 104° again. There was marked rigidity of the abdominal muscles over the right kidney. The latter could be felt as enlarged and very tender on bimanual examination. The urine contained a large amount of puss and was alkaline in reaction.

The patient refused operation until November 2, 1905; when the temperature after having been normal for twenty-four hours rose to 104° and was again accompanied by very rapid pulse and great prostration. I made an incision over the right lumbar region parallel to the last rib. On exposing the kidney many adhesions were found. The organ itself was brought to the surface. The cortex of the upper half was seen to be studded with a very large number of miliary abscesses arranged in groups with a hyperemic zone. A few were also seen over the lower half. Nephrectomy was done.

The temperature became normal after the operation. The urine for first few days contained small amount of pus.

Since then it has been clear. He began to resume active work as a painter about six weeks after the operation. He has gained thirty pounds in weight.

I believe that in the first case the infection was urogenous from a marked cystitis. In the second case a possible injury to the kidney preceded the urinary symptoms by over a year. There were no signs of cystitis before or after the the operation; so that the infection may have been hematogenous.

TREATMENT. There are three distinct methods of treatment. The first is the medical which may succeed in the milder cases: the administration of urinary antiseptics and the ingestion of large quantities of bland fluids, such as milk, water, etc. The temperature should be controlled, as far as possible, by hydrotherapeutic methods The bladder should be irrigated at regular intervals with weak nitrate of silver. Ureteral catheterization should never be used because of the danger of infection.

The other two methods of treatment are of an operative nature and differ only in degree. The first is nephrotomy and consists of exposing the kidney and opening the multiple abscesses with or without stripping off the capsule. There are many surgeons (like Israel, Brewer, Johnson, etc.) who claim that this method does not give as good results as nephrectomy. Some of the more radical advocates of nephrotomy even recommended the excision of the affected areas, if this be possible, in order to conserve as much of the kidney as can be saved. Nephrectomy has almost as many supporters as the more conservative operation. Johnson only cured one of seven patients by nephrotomy, the remainder being discharged with fistulæ. In a latter series of five cases he performed nephrectomy three times successfully.

Which one of these two operations is to be performed in an individual case rests to a great extent on the experience of the operator. In my own two cases nephrectomy resulted favorably in both, but I believe that in any future case I should be inclined to give nephrotomy a trial, especially if the disease was not far advanced and the areas of suppuration were miliary in size or only slightly larger.

I have been able to collect from the literature 34 cases in which nephrotomy was performed with 28 recoveries (82 per cent.), and 27 cases of nephrectomy with 45 recoveries (92 per cent). It is of course, unfair to draw conclusions from these statistics, since the cases vary greatly in severity. If the condition occurs during pregnancy conservative operation is indicated, If the condition is a part of a general pyemia extirpation of the kidney is out of the question.

SENIOR PROPHESY.

As I closed the futuroscope of Dr. Calvin Brown and turned around I heard the door of the room open softly and in fluttered the angel guide. A close look and I knew at once it was Dr. Clara Seipple. The reason I did not recognize her the first time I saw her was on account of her wings, which when spread measured nearly eighteen feet from tip to tip, and were of snowy whiteness with the exception of the edges which were the P. & S. colors. Do you know wings greatly change the appearance of any medical student?

I shook hands with her, and as we sat down on a diamond bench in the center of the room her first question was "How did you get in here?" I showed her my special two-day pass. 'Tis well, she said, that St. Peter did not make the time any longer. As I took my fly around heaven this morning for exercise, the people are already beginning to talk. We then talked of old college days. She told me after serving her interneship in Cook County Hospital she went to Jerusalem and taught anatomy in a medical college until her death which happened one day in the class room by the accidental lodgement of the Levator-labii superioris alæque nasi in her trachea.

We walked over to a window and she pointed away out across the vast meadowland where a new building was being erected. That is the new "Frat" house she said. Saint

Peter objected to it being built. He said it was only an extra expense as it would never be occupied.

"Let's look in and see what some of our class mates are doing." I was very willing. We walked around to the extreme left of the room and opened the futuroscope of Dr. Adolph O. Aaker. A city in South Dakota came to our view. It was Sunday and the doctor was seated at the pipe organ in one of the churches, playing the old familiar strains of "Aimone," as a prelude to the services. His wife, the daughter of the pastor of the church, was leading soprano in the choir, and by her side as leading tenor stood our Otto, Dr. Otto Albert Gahl, with the same serious, classical face he wore when a student. A beard partially obscured his Romanic features, which always distinguished him as a man among men wherever he went.

Dr. Seipple went ahead and opened scope and scope, future after future.

We saw Dr. M. M. Crofut at the head of a great institution for incorrigible girls. Her one eye was open night and day for these young ladies, and her quiet Puritan discipline together with her high professional skill, made her the right physician in the right place. Dr. Oscar Boone Edmundson was her assistant. "Dodo," how natural he looked. Fat and jolly as ever, and the same quaint little smile on his face.

Dr. Robert Disney, our old "deacon," and Dr. Irving Lovell, the class chaplain, were the two house physicians.

The futuroscope of Dr. Fred Ciphers was smoky. But it was only natural. We were looking into the very heart of London. The doctor was one of the great eye specialists of the city and people thronged his office from all over Europe. Tired at night we saw him riding home to his richly furnished bachelor quarters. He was still a confirmed old bachelor. The only romance which ever happened in his life happened years and years ago in Rising City, Nebraska, when he was very young.

The futuroscope of Dr. Herman Bundy and Dr. Elizabeth B. Ball were side by side on the wall. To look into one was the same as to look into the other. Their lives since June 21, 1907, had run along together in the same channel, very peacefully, in fact so peacefully that there were a few people who began to talk and say that they did not think Elizabeth was living up to the fighting color of her hair, Their office was the finest in Kankakee, and the new electrical sign over the door, "Drs. Bundy & Bundy," looked very pretty as we watched it flashing in the night time. Dr. Elizabeth Ball Bundy held the chair of Domestic Science in the University of Illinois.

As we glanced into the life of Dr. Emanuel Peterson, a pretty little city in New Mexico came before our eyes. In one of the fashionable resident parts of the city was the doctor's home, just across the street from the office of Dr. J. Bernard McGuire. Their wives were always seen together, Lizzie and Grace, two old chums in Chicago. and still chums. Dr. Peterson had one of the largest practices in the city. and as a mixer and good fellow, he was known among the "Greasers" everywhere.

A western scene spread out before us as the lid of the life of Dr. Wilbert Staley flew open. He and his wife and two children moved to California and the doctor had become one of the greatest specialists in Psychiatry in that whole country west of the Rockies. Even Dr. King and Dr, Mettler often called him east in consultation.

(To be continued.)

RUST.

A piece of iron immersed in water for a time will become covered with iron oxide—rust. If the water in which it is immersed contains chlorin, the iron oxide will be formed much more rapidly. The chlorin here acts as an indirect oxidizer; in other words, chlorin in the medium surrounding iron causes the iron to attract and combine more oxigen than it would under any other conditions. Chlorin also acts as an indirect oxygenator within the blood. Plenty of chlorin in the plasma is certain to be accompanied by plenty of oxygen in the blood, while a deficiency of chlorin will cause a deficiency of oxygen. Chlorin controls the oxygen percentage within the blood, and from oxychlorine, a non-toxic salt, both chlorin and oxygen are readily available.

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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The students of the P. & S. are a unit in expressing sorrow and sympathy to Dr. J. M. Cooke and Miss Heelan, because of the recent bereavement which has befallen both, as the following notices will show:

Died—At her home in Chicago, Saturday, Jan. 5. 1907, Mrs. Alice Mottram Cooke, mother of Dr. J. M. Cooke. Interment at Barrington, Wis., Tuesday, Jan. 8, 1907.

Died—At her home in Chicago, Tuesday, Jan. 1, 1907, Mrs. T. Donohue, mother of James Donohue of the Freshmen class, and sister of Miss Heelan. Burial at Huntley, Ill.

THE PLEXUS takes this opportunity of expressing in behalf of its readers and the entire student body sincere condolences to those bereaved.

Dr. George M. Ross, '06, was married Jan. 1, 1907, to Miss Henrietta Lange. Dr. Ross is located at Watseka, Ill., and is doing very nicely. His classmates will be greatly pleased to learn of his double good fortune.

Dr. S. J. Boyd and family, 413 Washington Boulevard, Chicago, have taken a cottage for the winter at Ocean Springs, Mississippi.

SENIOR NOTES.

School work resumed the even tenor of its way after the holiday vacation. The students were unusually prompt in returning to their duties.

The senior class extends its sympathy to Dr. Cooke in her great bereavement, the death of her mother.

E. D. Augspurger has succeeded Kusske as anesthetizer in the clinical amphitheater, and the latter will take a position in the Augustana Hospital.

Although having been of marrying age for several years J. A. Edwards has never partaken of that luxury, but of late has become attached to a little Miss at the West Side Hospital, and has been seriously considering the idea of providing a home for his chosen one; the aforesaid Miss being a little orphan whose age is about four weeks.

One of our able quiz masters in medicine spent some time in explaining that a floating spleen was technically called a "wandering" spleen.

Voice from the Rear—"Where is my wandering spleen tonight?"

Brilliant genius—"Down in the tenderloin."

Dr. Miller (Calling roll in medicine).—"Hansen."

Whitely (answering)—"Here," then after several minutes reflexion, "Oh, no, no! I beg your pardon. He's sick."

E. E. Birmingham broke the rules of this class by taking unto himself a wife without first securing the advice of his married classmen. Such an act is deserving of the extreme penalty of the law; but as a man in this position needs encouragement and sympathy, we will suspend sentence during good behavior, extend congratulations, and hope that all their troubles will be little ones.

Graybeal has been boarding with the neighbors during his wife's absence. He was seen scratching his head and looking through a book on dietetics for an obesity cure. It is strange how one will increase in weight when his wife goes away.

Ameen thinks the following bacteria may be found in pericarditis: "Tubercle, pneumococcus, gonococcus and what not," whatever that is.

We are glad to note that some of our noted colleagues have taken advantage of the glad New Year to do a little swearing off. Among the most noteworthy may be mentioned McKellar, who swore off his whiskers; Conner swore off wearing a short tailed coat to the "Junior Prom;" The Misses Seckler and Nilsson swore off accepting attention from the same fellow, and Miss Crofut swore off going to the "Prom" with any one but Phillips.

Our class poet, Aaker, promised a poem for this issue but found himself entangled in the meshes of the affections of a Minnesota girl during the holidays. After several unsuccessful attempts he finally succeeded in extricating him self, but the poem has been lost or stolen. Anyway he says that particular production was more suitable for the girl than the Plexus. No one doubts Mr. Aaker's ability to produce one appropriate for publication, and we may expect it in the next issue.

The holiday season was the banner period for the maternity department. During the two weeks there were

E. W. Thuerer, Validictorian.
W. G. Curtis, Historian.
C. E. Mayos. Prophet.
H. H. Seibert, Sergt-at-Arms.
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F. J. Conroys. Sgt-at-Arms. M. M. Freitag, Secretary. J. C. Schroeder. President.

twenty-one cases, among which was one Caesarian section, one eclampsia, two forceps deliveries, one post-partum hemorrhage, one still birth, one premature labor and the remainder of normal labors. The weights of the babies ranged from 3½ lbs. to 10 lbs. 2 oz. The students on duty for the period were Edwards, Ground, Wassom, Richardson, McComb, Ameen, Dillingham, Wolinsky and Mrs. Bentele, with B. G. Bissell commander-in-chief.

JUNIOR NOTES.

The Junior Prom is now only a pleasant memory. Our Dean, Dr. Quine, lead the grand march. Many of the faculty by their attendance added the required dignity as did also the much envied Seniors.

The excellent music, fine floor, and select attendance all helped to make the occasion an enjoyable one.

J. O. Lunn, and a very dear lady friend, his sister we believe, was there and had a pleasant time, though they did not participate in the dancing, Chas. Skwor and J. E. Dolan were very much in evidence.

Essig received a watchchain from Papa for Christmas, and two days later gave it to his lady.

Now that the holidays are over we can look forward to Washington's birthday and rejoice that it does not come on a Sunday.

A rare article—A Junior who studied during the holidays.

Wallace—Where do you make the incision in the intestine to remove the Murphy button.

Billious Fortino, our Italian classmate, may erect a banana stand near the college. Your patronage is solicited.

Dr. Harris—"Did you ever see a hen's egg without a shell on it?" We have, and have eaten them fried, boiled and poached. Visit the Cozy Lunch Room.

There is a rumor that Eckman has taken unto himself a wife. If this is true he has the sympathy of some and congratulations of all his classmates and the Juniors.

Mikkelson attends a dance every Friday night which accounts for his falling asleep during lectures.

Truthful Sam Brown, in a note to Dr. Eisendrath: "I never get here in time for roll call."

PLEXUS Puzzle—Is Doc Clark an Athlete? Send answer to Puzzle editor, PLEXUS.

The answers to last months puzzle show Dolan to lead the race by a big majority.

Schroeder visited the dental college and now wears plates. He says they keep your heels from wearing out.

Is Berger a Dutchman? He claims he can take German histories.

Several Juniors have been bitten by the spat-wearing microbe. Joyce got his from his sweetheart and Clayton has not stated his source of injection.

Professor—"What is the pathology of this disease."
Junior—"His pulse is weak."
Professor—"It usually is in a dead man."

Was Mrs. Parks excited or cool as a cucumber when Dr. Eisendrath presented her with a twenty year old man?

To drop a book while being quizzed denotes nervousness. If it is open where the professor is quizzing it shows lack af preparation.

How to tell the author of a note to the class president:
If "Mr. McCabe," it is from one of the ladies. If "Mac" or "McCabe," it is from one of the boys. If "Dr. McCabe," you may be reasonably sure that Doc Clark came in after roll call.

The following have entered the mustache race: Hunsaker, Norris, Lalor, Dowd, Fugina, Goembel.

Sherwood's section is doing better. Much joy.

Professor—"Mr. Gaudet how do you do a Connell suture?"

Mr. Mikkelson—"I have got it in my pocket." Shows a model resembling a bicycle saddle.

Oh, yes. Skwor went home for X-mas.

FRESHMAN NOTES.

Just when the holidays ended seemed a question to the majority of the Freshman class. Judging by the attendance the first few days indicates the opinion vering between Jan. 3rd and 8th. Attending college is a business in which the student is engaged, and a man to get the most benefit must of necessity be at his post at the appointed time else the other fellow will get what he should expect. The sooner we learn to realize this the more successful we will be.

On the afternoon of January 8th, the members who had returned from their vacation were given a very enjoyable as well as instructive trip to the Field Museum. To make things more interesting Drs. Wicks and Fischer were there with a few requirements written on their cuffs.

Dr. Wentz—Why do we prescribe mineral waters?

Ostrosky—To improve the health.

Since the time of Adam and Eve man has been shifting his responsibilities on the woman. The most recent case occurred during the visit to the museum when Carry showed the ladies the sights, then asked them to take notes—and write his essay. Defense Carry.

Gross spent the vacation in visiting numerous asylums. Looking for a room-mate or a location?

Who were the Freshmen that cut chemical laboratory to attend the obstetrical clinic, Fess up boys.

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BATAVIA, ILL., JAN. 20th, 1907.

THE STUDY OF CERTAIN PHENOMENA AS A PRELIMINARY TO DENTAL THERAPEUTICS.

By George W. Cook, B. S., D. D. S., Chicago, Ill.

Dean of Dental Department University of Illinois; Professor of Bacteriology and Pathology, University of Illinois; Professor of Oral Surgery, Dearborn Medical College.

It is becoming more and more a recognized fact that all biological phenomena must, as a last analysis, be settled through the investigations on the physiological activities of the cell. It must be remembered that it is only a little more than half a century since Schleiden and Schwann revealed the fact that all organic substances, possessed of a physiological activity, was made up of minute bodies or structural units known as cells.

In the higher organization of life, both in the animal and vegetable kingdoms, there are a great number of these minute cells combined to make up the whole of the organization. It was at first thought that the body was composed of innumerable minute bodies that have their special organization within themselves. They are wonderfully diversified in their morphological structure as well as their physiological activities. The muscle cells, the bone and brain cells, are so formed as to carry out certain functional activities, each one having its own special work to perform, but still there must be that continuity of physiological activity in order that each structure can perform its individual function.

It is well understood that the function of physiology is to explain all vital phenomena and their relations to each other, but when it is considered that this study has only been very largely confined to the chemical and mechanical activities of the higher vertebræ, it can be seen at once that there is a vast field of physiological science that remains absolutely unrecognized in the biological world.

Cellular morphology is the forerunner of physiological research as applied to the living cell, and upon these two factors rest the explanation of all vital phenomena both in health and disease. It was upon the study of cellular morphology that Virchow established his well known cellular pathology, thus demonstrating the fact that all the various functions of the body both physiologically and pathologically are but outward manifestations of cell activity. It was through the study of cell structure thar Kolliker and Remike made the scientific world familiar with the embryological developments of the multicellular forms of life.

While the microscope reveals many facts relative to the cell with regards to its morphological arrangement, still the chemistry of living substance is a vast field yet to be explored before a full explanation of the vital manifestations of life are explained.

It is a well known fact that the physical world is made up of sixty-eight elements, still there are only twelve that are constantly present in living substance. These twelve elements enter into the organic bodies through three chief chemical bodies, and through their chemical transformation they form that vital phenomena known as life. These three substances that enter into living protoplasmia are known as proteids, carbohydrates and fats. The first named substance (proteids) quantitatively constitutes the chief constituents of cell life. The chemical elements that enter into proteid are carbon, hydrogen, sulphur, nitrogen and oxygen. The presence of nitrogen in proteids is one of the distinguishing features between proteids, carbohydrates and fats.

While the chemical composition of proteids is not well understood, still there has been sufficient investigation on this phase of the subject to demonstrate that it is an extremely complexed molecular structure, although it contains only the five elements, yet the atomic grouping reaches sometimes into the thousands. It has been further demonstrated that this chemical substance is very essential to all living protoplasmia.

It would be quite out of place to discuse this important substance ih all of its varied phases, with reference to living substance, but it will be understood that the five elements herein mentioned in proteid substance must be carried into the cells of both the multicellular and unicellular forms of life by way of the proteid molecule.

The next chemical substance closely allied to the nutritive function of living substance is carbohydrate. This latter substance chemically contains but three elements, namely, carbon, hydrogen and oxygen. The carbon atoms found in the molecule of carbohydrate is always six or a multiple of six. It will be observed that carbohydrates contain no nitrogen, likewise the fats are a non-nitrogenous substance and chemically are not always essential to the chemistry of living protoplasmia.

Since we recognize that there are twelve organic elements present in living substance these elements must come to the organism in some form as food, and the clinical structure of food and the method by which it is introduced into living substance is as varied as the forms of organic life. A general food for all organism is not possible. Green plants are able to construct their organic substance out of inorganic material. For instance, carbolic acid and various salt solutions are sufficient for plants to build up their chemical complex structure, while on the other hand animals require organic food, and without exceptions they must have complexed organic compounds, such as proteids, carbohydrates and fats, out of which to build their body substance.

The fungi in a certain sense stands between these two well defined kingdoms, for they are able to obtain the nitrogen necessary for their organic substance out of inorganic salts, although they must have an organic chemical structure out of which to obtain their carbon. However, there is an exception to this rule, inasmuch as there is a form of bacteria that can obtain their nitrogen and carbon from ammonium carbonate, thus in this respect they are like green plants, able to obtain their food stuff from inorganic sources.

The minimum and maximum quantity of food necessary for living substance is a question that has received but little investigation and that only in the higher forms of life. The quantity necessary for the maintenance of the metrobolical equilibrium of the human individual is of the highest importance. Voit has shown that an adult man performing active work and obtaining 180 grs. of proteids, 56 grs. of fats, and 500 grains of carbohydrates, should be in perfect metrobolical equliibrium, provided the individual is excreting the same xuantity of substance as he is taking in with food stuffs; especially should this be true with regard to nitrogen and carbon, and these two elements should be determined separately, for it is a well known fact that when the body is in perfect carbon equilibrium it does not necessarily mean that it is in perfect nitrogen equilibrium. Therefore, the sources from which these chemical elements come, vary in so many respects that it is extremely difficult to know the exact reasons why they are not always in harmonious relation with each other.

It was for a long time believed that there were sharp and well defined lines between the metabolism as it existed in both the animal and vegetable kingdoms, but since the recognition and investigation on that low form of life known as bacteria, it has brought considerable confusion into the science of physiology. For instance, many of them live and are able to obtain their nutrition from inorganic sources, while others must be in the presence of organic substance where they can break up this compound and obtain their nourishment from strictly organic sources. There are, however, some low forms of life that belong strictly to the animal kingdom that must have a special source from which to obtain their organic nutrition; for instance, the fur-moth that lives exclusively upon the hair of furs that contains a special substance, almost a pure chemical substance, which is absolutely necessary for them as food stuff. The chemical substance which they extract from the hair is known as keratin and is very closely allied in its chemical constituent to that of proteids. So various animals must obtain their food from special organic sources.

It is, however, a pretty well established fact that there is no animal thus far known that can live strictly on a carbohydrate or fat diet, not even when the two substances are combined. So it will be seen that the proteid is a chemical compound that is always essential in the maintenance of the life force in the animal kingdom. What is absolutely essential for the existence of one organism might possibly endanger the life in another.

There is an important factor that must not be lost sight of in the metrobioical changes that take place in the animal economy, and that is the decomposition processes. The minimum amount of food necessary for the equilibrium of body nutrition disturbs the metrobolical equilibrium far greater than an excess of food would produce. Consequently in order to keep the body in perfect metrobolical equilibrium it must be able to obtain these three chemical compounds, namely, proteids, carbohydrate and fats, in proper relation to each other. When these substances are taken into the animal organism in their proper chemical state they act as cell stimulus and increase the cell activity of those parts that they come in direct contact with, to the extent that the cells will excrete a substance that has an enzymotic action upon this properly prepared food stuff, and they pass into the cell substance as free and uncombined elements, and there are reconstructed into protoplasmia, which is capable of manifesting itself with all the phenomena of life. The process of building up living substances is a synthetic process, but differs from all other phenomena of like character, in that it contains the possibilities of irritability and which manifests itself as a vital force which is inherent in all living protoplasmia.

If time and space would permit the discussion of the mechanics of cell metabolism it would be found to be a very complexed chemical process, in which there takes place the highest chemical reaction possessed of a wonderful physical process, all of which needs further study in order that a clear explanation may be had regarding certain vital manifestations that are at the present time practically unknown.

As we approach the higher forms of life we see that wonderful differentiation of cell activity and how interdependent one cell is upon the other, and morphologically as well as physiologically they have a certain function to perform that belongs solely to that individual cell; but all are given expression to the interaction of two factors that are manifesting themselves in their external and internal vital process. Therefore anything that would arise that would influence either of these factors would necessarily change the vital manifestations that exist in the cells or tissues of the body, and therefore the change of environments is consequently influencing the internal relations of cell activity in the tissues of the body.

Therefore, since we recognize that metabolism is the source of the vital manifestations of the body and unless these twelve elements can enter the body in the proper chemically constructed molecule and be broken up and reconstructed in the proper chemical formula of the cell. For instance, some of these elements may be built up in the cell wall, nucleus, or in the cytoplasmia of the cell, but it must be understood that these elements do not enter into the protoplasmia as ions. Therefore in the precess of building up the enamel and dentine of a tooth these inorganic salts are not carried as sodium chloride or calcium carbonate but are carried there as separate elements and deposited as a chemically formed substance. This synthetic process is a comparatively simple one, consequently the more firmly are the atoms bound together than they are in the complicated synthetic produce, such as the proteid molecule.

It is a well known physical law that there is as much energy stored up in a mechanically combined substance as is required to construct it, consequently if we are to have strong and robust individuals with teeth containing more potential energy than the chemical substance that they are constantly brought in contact with, it will be necessary to see that the cells out of which the individual is constructed, as the results of inheritance, and its adaptations of the external conditions of life, is of a quality capable of building up this synthetic compound into the highest chemical and physical structure, with sufficient potential energy stored up in the cells and tissues of the body, that it will be capable of resisting all ordinary external physical forces that it may come in contact with.

It has been said by an eminent author, "In no case can anything appear in the form of disease which was not previously present in the body as a predisposition." The external agents, such as bactesia and other such forms of disease producing organisms are only capable of making this predisposition apparent. He further says that we can either heighten this predisposition or remove it altogether; and herein lies the science and dentistry of today. When it is understood that predisposition depends upon the inherited vital manifestation of the body and its adaptations to its external environments, and that external environment means the food and drink that is taken into the body, would it not seem possible that eventually immunity might be established to the disease known as dental caries and various other manifestations of the morbid processes of the oral cavity?

If all the biological phenomena are taken into consideration it is at once observed that an inherited predisposition to a certain form of disease, like dental caries or pyorrhea alveolaris, and the external environments are much as to interfere with the metrobolical equilibrium of the body, and especially if this environing condition may be in the early part of the life of the individual before the immunizing powers of the body have reached anything like their higher development, that usually appears in the individual after he has reached the age of maturity.

Since we recognize that metabolism has the wonderful influence on the building up of the body substance, this influence of nutrition can be better demonstrated on the low forms of life, such as bacteria. For instance, we know that the so-called pathogenic germ does not always have to live as parasites, for they can be cultivated artificially and in some instances they may lose their pathogenic power, while on the other hand they may be able to produce certain fermentative processes. Take for instance the germ of cholera, when grown on a potato it produces a grown pigment, but when grown in a culture media containing sugar it produces acid fermentation. On the potato it produces no acid, while in the solution containing the sugar it produces no pigment but an acid fermentation instead.

One of the most interesting biological problems connected with the nutritive function of bacteria, and the way by which they are influenced by their external environments, is that of the anærobic Certain forms of these organisms will not grow in the presence of free oxygen of the air, but must be surrounded with an organic compound and construt out of it their own body substance. It is possible, however, in many instances, to grow these bacteria in the presence of the free oxygen of the air until they pretty comfortably adapt themselves to their external environment. This physiological phenomenon of bacteria is a very interesting and far reaching subject, both with reference to disease and fermentation.

We recognize in all forms of life the importance of surrounding influences coupled with the best possible nutritive substance to get the highest development in both animal and vegetable kingdoms. What is true of the highest forms of life is also true of the lower forms of living substance, and our interpretation of disease and the etiological factors which enter into it must base on broad biological ground. The remedy of its alliviation rests with the public, state and nation at large, for without their assistance there will be a continual struggle for existence, associated with pain and a great loss of life, both in infancy and adult age, but the foundation rests with the proper nutrition of infancy and childhood.

(To be Continued.)

PURIFICATION OF SEWAGE.

A valuable contribution to the literature on the disposal and purification of sewage has just been issued by the United States Geological Survey as Water Supply and Irrigation Paper No. 185. Investigations on the purification of Boston sewage with a history of the Sewage-disposal problem, by C. E. A. Winslow and E. B. Phelps. The volume of sewage discharged by modern communities is so targe and the character of all kinds of sewage is always so objectionable that the so called sewage disposal problem becomes, from the economic as well as the Sanitary point of view, one of the most serious with which American cities have to deal. It is of vital importance to every community to secure such a disposal of obnoxious sewage as will avoid the creation of any insanitary focus or foci in the environment or any infringement of the laws of hygiene and sanitation.

The investigations described in this publication were made at the Sanitary Research Laboratory and Sewage Experiment station of the Massachusetts Institute of Technology under the direction of Prof. William T. Sedgwick. The station at which the work was carried on is situated on the line of the main trunk sewer of the south Metropolitan dtstrict of Boston, at a point where it contains the sewage of about half a million people. At this station pumps are installed and tanks were constructed for tests of the various methods of sewage purification.

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OF THE UNIVERSITY OF ILLINOIS.

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CLASS EDITOR:
P. O. Martin, '07.

THE '07 CLASS DINNER.

Having in mind the social, so succesfully given by the class of '07 during their junior year, the members of the class began early in the present session to make preparations for an event which should leave their initial effort far in the shade.

After many mysterious consultations of the special committee of arrangements and the officers, the Hamilton Club was selected for the great function and the evening of the last day of school before the holidays as the time.

So much for the time and place: The girl? Miss Reisman, of course; but impelled by the spirit of gallantry characteristic of our committee, Miss Erickson was persuaded to act as patroness for the occasion.

When the eventful evening at last arrived the class assembled in goodly numbers in the pleasant parlors of the Hamilton Club. The members of the faculty had been specially invited, and Professors Hallberg and Day, and Messrs. Snow and Clark were on hand.

The tables were placed in the form of an I and were beautifully decorated with carnations and holly.

The cuisine of the Hamilton Club is incomparably superior to the style of cooking which prevails in our Michigan Avenue boarding-houses, and you may be sure that the boys did full justice to the substantial spread. The intellectual feast began when President Karl Anderson arose and speaking for the class, called upon Prof. Hallberg to act as toastmaster. The professor was taken by surprise and tried to dodge, but seeing that there was no fire escape at hand he acquiesced with good grace and entering fully into the spirit of the occasion acquitted himself brilliantly.

The members of the class were called upon in turn and each responded at greater or less length, usually giving some humorous incidents of his pharmaceutical career.

At the request of President Anderson the "usual quiet" was maintained except for the applause which greeted the recital of some unusual experience. Everybody had a chance: Floyd Bunch of the F. F. V.'s spoke of the Old Dominion: Cassin told of some of the oddities of Salt Lake; Miss Reisman explained satisfactorily how she happened to take up pharmacy; Treasurer Blake was introduced by the troastmaster as hailing from Watseka, an historic locality. Mr. McNair responded for the benedicts of the class, while Mendelssohn was called on as representing its musical talent.

Blahnik talked interestingly of the drug business in Bohemian neighborhoods while Christmann explained why the Germans have attained such pre-eminence as pharmacists.

Bakkers denied that his Roseland customers wore wooden shoes. Carlson could not see that any other nationality had the edge on the Swedes as pharmacists.

Thompson made the hit of the evening by offering the following tribute to the toastmaster:

"Here's to Hallberg with his cunning smile
Who twists his neck every once in a while.
He calls to the "end men" to "pass the Bel"
Which makes the fellows begin to yell;
At this he rises and pounds on the desk
The boys take this as only a jest.
May his name be writ in the Hall of Fame

Until the death angel puts in his claim."

Professor Day commended the class spirit which had made the affair so successful and expressed the hope that the class would form the habit of meeting together socially after the short school term has passed. He wished them many pleasant reunions. The disposition on the part of druggists to neglect opportunities for meeting and exchanging views with their fellow pharmacists, he said, is one of the most discouraging features in pharmacy today, but steady improvement in this direction is to be noted.

Mr Clark and Mr. Snow were also called upon and responded happily, wishing the class a pleasant vacation and success in their studies.

The toastmaster closed the evenings entertainment with a good story and some appropriate remarks, and the members of the class left for their homes after deciding that the dinner was a great success.

In addition to the members of the class mentioned above, there were: W. A. Ferguson, W. J. Beyermann. H. J. Pfaff, W. H. Reuter, H. C. Johnston, G. L. Secord, H. L. Griest, I. W, Lindley, D. E. Ellsworth, F. E. Schinz, W. H. Hynes, R. F. Haines and Jacob Goodman, and the reporter, P. O. Martin.

SENIOR CLASS NEWS

The pins were duly received and much admired. They have been voted a success.

We are all back at work again after the holiday vacation, except Beaman who has been detained at home by sickness. He is expected back in a few days.

A. J. Nelson, who was visiting at Rockport, Ind., made a long stay. He didn't return until the second day of school. I think there was some other attraction besides home folks.

The rumor is out that Henry J. Pfaff is trying to get on the Advisory board.

JUNIOR CLASS NEWS.

Waterman, the college photographer took a group picture of the class in front of the school building, January 7th. We are anxiously awaiting results.

The honor system is to be put into effect this month. Class President Schreiber will appoint three monitors who will supervise the deportment of the students and report to Prof. Day.

We appear to have lost two of our class-mates during the holidays, Mastandrea and Pellett.

Physiology is now disposed of, somewhat to our relief, though the course was interesting and practical. Most of us have credit for the study.

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COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT OF THE
UNIVERSITY OF ILLINOIS,
CHICAGO.

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THE RELATION OF THE STATE TO MEDICAL EDUCATION.

By Dr. Bayard Holmes.

Professor of Surgery in the University of Illinois.

In a recent communication to the legislature, Governor Deneen speaks of the excellent work of the University of Illinois, and referring to the schools of Arts, Sciences, Economics, Applied Chemistry, Ceramics, Agriculture, Engineering, and Library Science, he says; "These departments have gathered information of the most varied kinds from all parts of the world, and have determined by experiment what portion of it is available for use in meeting the needs of Illinois, and no one familiar with the natural resources of the state but is aware that the strictly commercial benefits annually conferred by their work measured in dollars and cents vastly exceed the total expenditure for the maintenance of the university since its foundation."

The *raison d'etre* then of the university is sought in the ultimate economic return which it makes to the state and the citizens of the state out of whose resources it is supported. There may be other motives for an endowed higher education but even this is sufficient. The argument is often put forth that higher education benefits only a small class. The more generally the benefits of any form of higher education are distributed to the citizens of the state the more reason there is for its public support and likewise the smaller the number of citizens benefited the less reason there is for a democratic state's patronage. Nearly every state university recognizes this fact.

Education is endowed by the state because it is not an investment upon which the individual who makes the investment may expect to realize. Education like forestry needs state encouragement. Unlike railroad building it may never be expected to grow into independence.

The University of Illinois has a school of engineering, a school of electrical engineering. a school of architecture, and a school of law. Each of these schools have appropriations from the state. The benefits of each, however, fall ultimately on only a small class of citizens, The school of agriculture benefits another and a larger class. The school of Library Science probably diffuses its benefits most indiscriminally over all classes and all ages. The various schools of pedagogy, receiving the largest appropriations of all from the state treasury, showers its benefits on nearly every prospective citizen.

A more liberal training and generous equipment of the medical practitioners of the state would be an inestimable and universal benefit. Every citizen requires the occasional service and advice of a physician or surgeon. Better advice makes the disability of injury or disease shorter. Opportune advice prevents disease or disaster. The economic gain from improved public and private hygiene from national medical advice and timely surgical service is not a negotiable factor in the resources of the commonwealth. The value of a higher grade of medical advice and medical responsibility was unexpectedly realized in the Ruso-Japanese war, which was practically decided by the skill of the medical faculty of the Japanese army and navy in keeping up the health and efficacy of the troops under adverse surroundings where the Russian army broke down with preventable disease. It may be that the time is approaching when the economic supremacy of our country will depend upon sanitary, hygienic and dietetic conditions which can be secured only through a more highly trained medical profession. The medical school conducted for profit will inevitably teach that medicine which is demanded by the fee paying student. This student will insist upon that equipment which the fee-paying patient requires. It need not be said here that the good of the state, even that which can be measured in dollars and cents, is not always conserved by this manifestation of the law of supply and demand. It is well recognized by the medical profession that superior medical equipment rarely pays as an investment. It may be exploited like any novelty or importation but the demand for superior scientific and ethical medical service is small and fickle.

The unborn citizens of the state call for a cultured, conscientious and scientific medical profession. Millions are spent annually to promote a better breed of horses, cattle, hogs and other animal food products, but who is fitted to be the guardians of the principals who are to consume them? The state of Illinois spends millions on its defective, delinquent and other dependant classes, but how little on any effort to discover and obstruct the sources of the wards of the state. The number of the blind requiring an expensive special education, the number of the mutes and mentally abherrant and defective, and even the alarming inundation of the delinquent classes filling our prisons and clogging our courts of justice, may be reasonably expected to dwindle away under a rationally educated medical profession and the enlightenment and foresight which their influence and service might accomplish.

As an earnest of what a liberal endowment of medical education might do, let me refer to the work in this direction which it has already individually and without assistance accomplished.

1. All venereal diseases are easily recognized and promptly cured, and the stirility and personal suffering which they engender diminished to a minimum.

2. Smallpox and diphtheria, two of the most terrible

plagues, formerly levying a tribute of nearly one tenth the population, have been completely conquered.

3. Cholora infantum and scurvy are well in hand and could be robbed of all economic significance, were the dictates of the medical sciences carried out in the milk supply, and the management of our army, navy, merchant marine and public institutions.

4. Childbirth has been robbed of most of its dangers and a large part of its pain.

5. The wound diseases have been almost completely exterminated, and the hospitals of the world show an efficiency in relieving distress and curing diseases ten timer their former capacity.

6. The general death rate of the cities and even of the country has been reduced through an understanding of the sources of typhoidal, tuberculous, and other diseases carrying contagion, and the average life thus prolonged.

7. There is reason to believe that the health, strength, stature and economic efficiency of the average citizen has been increased by the skill, knowledge and culture which the medical profession has attained without public recompense or encouragement, and for the most part directly against their interest as members of a guild or trade.

8. The ethics of the medical profession has been and are theoretically and practically more humane, less selfish and more communal than that of any commercial or professional class, any party, union, association, hierarchy or community.

These benefits are small compared with the mead of service which a profession equipped by an endowed and liberal education could be reasonably expected to return to state. Some of the possibilities of further conquests of disease are now in view, and others are outlined by the prescience of our inspired medical philosophers. The practices of stirpiculture may not be realized, but the possibilities of a more effective and happier citizenship might some day be realized and our continent saved from a mongolian invasion either in trade, in art or in war. The burden of our defendant, delinquent and defective classes is an increment of no negligable size, (as measured by cost in dollars and individuals) or in function (as seen by the rapid increase of crime, insanity and such defectives as the blind, the mute and the epileptics). The University of Illinois should be the conscience of the state.

The government of the United States and the several states appropriates annually for the agricultural experiment stations devoted to the study of the physiology and pathology of the domestic, animal and food products, the annual income of more than forty millions of dollars, while the total endowment from public and private sources of all the medical schools and institutions in which the physiology and pathology of man is studied and taught, have an endowment of less than one-half this sum. If the study of the strength of materials, the composition and possibilities of our soils and earths, the resources of our lakes, rivers and seas cannot be left to individual activity and initiative when the results of these investigations can be exploited with great financial return, how much more necessary is the endowment of medical research and teaching which can under no circumstance be immensely profitable to any individual or corporation? Yet we see in nearly every state university and in many of the privately endowed corporations departments of technology, engineering, electrical engineering and architecture conducted wholly regardless of the fees of students and entirely for the hope of indirect financial and economic returns. Theology has its endowment from the private purses of the benevolent in sums so great that there are not students enough to take advantage of the education offered, and these sums aggregate more than sixty millions.

Beside the immediate return which individuals in the state might reasonably be expected to receive, from a higher standard of medical education, the medical school should become a large factor in the care and correction of the dependent and delinquent classes. The end of charity and public charities ought to be to render charity unnecessary.

The care and study of the insane, the delinquent, the blind, and the mutes ought to be so thorough and so insinuating that the sources of these unhappy wards of the state could be reduced to minimum. This work ought to be one of the duties of the medical faculty of the state institution, and it ought to employ the enthusiasm, ambition and energies of a great number of the best equipped students, greatly to the advantage of the patient, the student and the character and spirit of the school.

While many have deplored the necessity of our present civil service methods, the needs of our state institutions have forced the chinese method to be accepted. By the proper corelation of the educational, reformatory, curative and parental functions of the state through the university of the state and especially through the medical school and its faculty, the so called political exploitation of these institutions could be eliminated and most of the abuses which exist at present blotted out. There is no so unbribable a body of critics as the student body of the state. These young people represent the highest ideals, the most courageous spirit, and the truest judgment of the conditions which surround them. Aud through the proper guidance of their sharpened intellects the medical faculty may succeed in cleaning these Augean stables of our state charaties, our poorhouses, and even our private asylums and orphanages.

ALUMNI ITEMS.

Dr. C. J. Plonske, 05, has been honored by the County Medical Association, of which he is a member, by being elected delegate to the Iowa State Association Meeting.

George V. Ridley, '04, died recently in Panama, a victim of overwork. Dr. Ridley held a goverment position on the isthmus and his energy and ability made him a valuable man and earned him many substantial promotions. The class of '04 will be very sorry to learn of his untimely death.

THE OFFICE OUTFIT AND ITS USES.

WILLIAM LINCOLN BALLENGER, M. D.,
Professor Otology, Rhinology and Laryngology, College of Physicians and Surgeons.

(Continued from January issue.)

TOPICAL REMEDIES.

Topical remedies which should be upon the treatment table are not numerous though individual preference may greatly modify their number and character. I shall only refer to some of those which have proven satisfactory in my practice.

The Nitrate of Silver—The following solutions of the nitrate of silver should be kept on the treatment table in blue glass bottles, or in a cabinet within convenient reach of the surgeon or his personal assistant.

1. ℞ Argenti Nitratis gr. X
Aquae Des. ℥i
Mix.

This is approximately a 2 per cent solution of the silver salt and is useful where a mild but positive astringent action is required, as in simple subacute catarrhal inflammations of the upper respiratory tract. It may be applied with a spray tube, the essential parts of which are made of hard rubber and aluminum, or of glass. Other metals are acted upon by the silver salt and are not suitable for the silver solutions on this account. The silver solution may also be applied by a cotton applicator. A camels' hair brush is not recommended on account of the difficulty of keeping it sterile.

2. ℞ Argenti Nitrate gr. XX
Aquae Des. ℥i
Mix.

This solution is approximately 4 per cent in strength and may be used as No. 1 where a positive astringent and antiseptic action is required.

3. ℞ Argenti Nitratis gr. XL.
Aquae Des. ℥i
Mix.

This solution is approximately 8 per cent in strength and is useful in the more chronic catarrhal inflammations of the upper respiratory tract. Solutions of greater strength than this are rarely indicated in chronic inflammations of the mucous membrane except when a caustic action is required. Higher strengths are apt to cause irritation and an aggravation of the local chronic inflammation.

In the very acute inflammations a much higher percentage of silver may be used.

4. ℞ Argenti Nitratis. ʒii
Aquae Des. qs. ad. ʒi
Mix.

This is a 25 per cent solution and is useful as a local application in acute infections, inflammations of the fauces and the mesopharynx. It is especially useful in acute lacunar tosilitis, one application in the primary stage often being sufficient to abort the inflammatory process.

5. ℞ Argenti Nitratis ʒss
Aquae Des qs. ad. ʒi
Mix.

This is a 50 per cent solution and is a valuable local remedy in acute lacunar inflammation of the tonsils. The more acute the attack and the more edematous the tissue, the stronger the silver solution should be.

6. ℞ Agenti Nitratis gr. ccccxxxij
Aquae Des. qs. ad. ʒi
Mix.

This is a 90 per cent solution and is useful in acute lacunar tonsilitis in the most virulent and acute stage. It should only be applied when the inflammation is very recent and aggravated in type. The tissues should be succulent and highly inflamed. In such a case of acute lacunar tonsilitis it is a specific remedy. I have never seen a case corresponding to the above description in which a second application of the remedy was necessary. Its use in this strength is not painful, but on the contrary relief immediately follows its use.

If this strength of solution were applied to a subacute inflammation it would probably aggravate the existing inflammatory process instead of relieving it.

The action of the silver salt in the higher strengths is to coagulate the mucous secretions and to blanch the surface of the inflamed mucous membrane. It is also a powerful germicide which explains its action. The inflammatory infiltration of the tissue is checked and the vitality of the infective bacteria is lowered or destroyed.

A *caution* as to the use of silver nitrate. The silver salt in any strength of solution has a marked irritating effect on the intrinsic muscles of the larynx, hence it should not be allowed to trickle down the walls of the larynx. To avoid this accident the cotton wound applicator should be freed of an excess of the solution by squeezing it with a liberal wad of cotton. When this is done the inflamed area should be lightly brushed with it.

Silver maxims:

a. The milder the inflammation the milder the solution.

b. The more intense the inflammation the stronger the solution,

Guaiacol Solutions.—Solutions of guaiacol in olive oil are useful local remedies in acute inflammation of the fauces and the pharynx. The strengths recommended are 10, 25, and 50 per cent of guaiacol in pure olive oil. The more severe the inflammation the stronger the solution required.

While guaiacol is not as efficient a remedy in the acute tonsilitis as the stronger solutions of silver, it is nevertheless very positive in its action, many cases requiring but a few applications to check the inflammatory process.

It produces a pungent hot sensation which lasts for about 30 seconds, but is otherwise a pleasant remedy.

The Compound Tincture of Benzoin.—The compound tincture of benzoin is a valuable local remedy in the throat where a mild but positive astringent and antiseptic remedy is indicated. It may be used in chronic granular pharyngitis during the mild exaccerabations of the disease, with pleasant results.

Its chief value is as an adjunct in dressing the nasal and accessory cavities, and in a foul-smelling ear, either before or after a mastoid operation. The gauze should be moistenes in the solution and applied in the cavity. The solution prevents decomposition, and it stimulates healthy granulations. A plain gauze dressing in the nasal chambers if allowed to remain more than 24 hours often takes on a very offensive odor. If the gauze is moistened with the compound tincture of benzoin it may remain in the nose for 72 hours without acquiring an offensive odor.

A foul-smelling chronic otorrhea may be rendered sweet by mopping the cavity dry and applying a dressing of gauze moistened with the compound tincture of benzoin.

The Subnitrate of Bismith Powder.—This powder may be used with gauze dressings as a substitute for the compound tincture of benzoin. It also prevents decomposition, though not over so extended a period.

It may also be insufflated into the nose, after an intranasal operation, where it forms a coating which acts as a mechanical and a chemical protection to the underlying tissue.

Ichthyol Solutions.—Ichthyol in aqueous and glycerine solutions may be used as a topical application in the nasal chambers where there is a foul or ozenic secretion. The nose should be packed with cotton or gauze saturated with the solution. Personally I prefer to use a corkscrew applicator, wound with cotton and dipped in the ichthyol solution. This is then introduced into the nasal cavity and the applicator removed with a reverse screw motion leaving the ichthyol pad in the nose. This should be left in place for from 10 to 30 minutes according to the amount of dessicated secretions present, or according to the degree of infection and tumefaction of the tissue, as the case may be. If secretions are profuse and dried in the nasal cavities the aqueous solution should be used; if there is a state of sepsis and local tumefaction of the tissues, the glycerine solution should be used on account of its hygroscopic action.

The Iodine Solutions.—Iodine in a glycerine menstrum is a valuable remedy in chronic granular pharyngitis, and in those cases of middle ear catarrh associated with granular pharyngitis.

The following formulæ are the ones I employ in such cases:

1.	℞	Tr. Iodine	m. xlviii.
		Glycerine	q. a. ad. ℥i
Mix.			
2.	℞	Iodoform	gr. i
		Potas. Iodide	gr. x-xx
		Morphia Sulphate	gr. i
		Glycerine	℥i
		Mix.	
3.	℞	Iodine	gr. v-xx
		Potas. Iodid	gr. x-xxx
		Ol. Gautheria	m. v.
		Glycerine	℥i
Mix.			
4.	℞	Tr. Iodine Tr. Ferri. chl. Glycerine	a a q. s. ℥i.
Mix.			

The fourth formula is very astringent and is used to promote even healing by granulation after tonsilectomy in adults. It is also of great value in the subacute type of granular pharyngitis.

Carbolic Acid.—Carbolic acid may be used in any strength from 10 to 95 per cent aqueous or glycerine solution. The following formulæ are those recommended.

1.	℞	Carbolic acid	gr. xx.
		Glycerine	℥i
Mix.			

This is approximately a 4 per cent solution and may be used in subacute dry dermatitis of the external auditory meatus, and in subacute otitis media.

2.	℞	Carbolic acid	ʒi
		Glycerine	q. s. ad. ℥i
Mix.			

This is a 12 per cent solution and it may be used in acute otitis media. It should be dropped into the meatus two or three times daily and a cotton plug introduced to prevent its escape. It is claimed for it that if used in the initial stage of acute suppurative otitis media it aborts the further progress of the inflammation in nearly every instance (A. H. Andrews). On the other hand it is claimed that its frequent use causes a fibrosis and thickening of the ear drum and thus causes permanent diminution of hearing. It may be said, however, that its frequent use is not often required to abort an attack of acute otitis media.

3.	℞	Carbolic acid	gr. cccclvi
		Aquae des.	gr. xxiv.

Mix.

This is a 95 per cent aqueous solution of carbolic acid and it may be used where a superficial caustic effect is desired as in infective granulatomata of the middle ear, and mastoid, either before or after operation. I have occasionally used it in old foul-smelling otorrheas to allay the odor and to stimulate healthy granulation.

It should be carefully dropped into the middle ear without allowing it to come in contact with the meateal skin and at the end of one minute alcohol should be instilled to check its action.

Alcohol—Alcohol is also a valuable remedy for topical applications. I know of no better ingredient for a gargle than alcohol. It is astringent, and antiseptic, and when properly diluted, is cooling to an inflamed surface.

1.	℞	Alcohol Cinnomon water	aaʒii
		Formaldehyde	m. ii
		Glycerine	ʒv
		Aquae des. q.s. ad	ʒviii

The above formula is a good gargle in acute tonsillar and pharyngeal inflammations, and in the soreness following the removal of the tonsils.

In very young children it may be used in a more diluted form.

In chronic otorrhea alcohol may be used in the following dilutions and mixtures.

2, ℞ Alcohol 1 part, Aquae des. 2 parts, mix.
3. ℞ Alcohol 1 part, Aquae des. 1 part, mix.
4. ℞ Alcohol 2 parts, Aquae des. 1 part, mix.
5. ℞ Alcohol 3 parts, Aquae des. 1 part, mix.
6. ℞ Alcohol 96%.

The alcoholic dilutions given above are used principally in the treatment of chronic suppurative otitis media. They constitute the so-called "alcohol treatment" of this disease. The meatus is first filled with the weakest solution, then mopped out, and each solution is applied in series until the patient tolerates the 95 per cent. solution. If the strongest solution is applied at once it causes considerable pain and irritation, whereas, if the strength is gradually increased these unpleasant results are avoided.

Alcohol is a positive astringent and anti-septic remedy of considerable value.

7. ℞ Alcohol 95 per cent. ℥i
Boric acid gr. xx Mix.
8. Alcohol 95 per cent. ℥i
Iodoform gr. V Mix.

The addition of boric acid and iodoform is supposed to give additional local antiseptic effects of these drugs. It is questionable, however, whether it does or not, as they are only held in solution in small quantities. If an excess of either drug is added and the solution agitated just before using the instilation of the solution, a precipitate of the partially suspended drug is deposited on the diseased mucous membrane.

These solutions should only be used after having applied the weaker alcoholic solutions.

Ointments—Various drugs may be prepared with oily menstrum, preferably lanoline, as it has greater affinity for the mucous membrane than vaseline. Pure olive oil may also be used as a menstrum. The following mixtures are recommended:

1. ℞ Zinc oxid. gr. XL viii
Lanoline ℥i
Mix.

2. ℞ Zinc oxide gr. XL vii
Morphia Sulph gr. 1
Atropine gr. $\frac{1}{100}$
Mix.

The first formula is soothing to an inflammed surface, and may be applied in those cases in which there is an irritating mucous or sero-mucous discharge in catarrhal sinuitis. It is also of use in the massage of the nasal mucous membrane as practiced in rhinitis when collapsed, and with turgescence of the swell bodies. For this purpose a delicate silver applicator should be wound with a small wisp of cotton and dipped into the ointment. The nasal mucous membrane should then be gently massaged with the ointment, the probe being lightly held with the thumb and forefinger. The wrist movement, or the combined wrist and forearm movement should be used in performing the massage. The applicator should be held so lightly that if the cotton wound tip should strike a turbinal or other obstruction the probe will slip through the fingers and do no damage.

The sensitiveness of the mucous membrane may be quickly removed by the above proceedure.

The second mixture is of value when the nasal mucous membrane is sensitive and when there is an acute exaccerbation. The morphia and atropine relieve the sensitiveness and reduce the congestion.

s. ℞ Ichthyol gr. XLviii
Lanolin ʒi
Mix.

The ichthyol ointment may be used in those cases where the secretions are dried in the nasal cavities to stimulate the glandular functions. It may be applied by massage as described above.

Chemical Caustics—Chemical caustics are largely replaced by the electrocautery, though there are instances in which the chemical caustics are preferable. The following are recommended.

1. Carbolic acid 95 per cent.

Where a superficial and diffused cauterization is desired, as in an unhealthy granulating surface carbolic acid is an ideal caustic agent. It does not penetrate deeply, nor doesn't produce pain. It is also of value in old suppurative ear cases in which there is a foul odor. The ear should first be thoroughly freed from secretion with a cotton wound applicator, and the carbolic acid applied afterwards. After one minute has elapsed alcohol should be dropped into the meatus to check the action of the carbolic acid and to prevent its action upon the skin of the meatus and auricle. The carbolic acid should be dropped into the middle ear with a medicine dropper, care being exercised to avoid getting it in contact with the cutaneous surface. A foul-smelling ottorrhea may thus be converted into a sweet-smelling one, and in some instances the diseased membrane caused to become covered by epithelium, and thus cured.

Carbolic acid may also be used in the pharynx where a diffused superficial caustic action is desired as in a mild case of granular pharyngitis though in these cases it is usually preferable to puncture the follicles or nodules scattered over the pharyngeal wall with galvanocautery point.

2. **Chromic Acid**—Chromic acid has long been a favorite chemical caustic in the nose, throat and ear work though it has been largely replaced by the galvanocautery. A few crystals are engaged upon the end of a probe and held over an alcohol or gas blaze to drive off the water of crystalization, but not long enough to reduce them to an ash or cinder. The bead of acid thus formed is drawn across the area to be cauterized and it rapidly abstracts the water from the tissue and thus destroys or cauterizes its superficial layers.

It may be used in turgescent rhinitis, follicular pharyngitis (granular pharyngitis), and in any other condition requiring cauterization. It is not as deep in its penetration as is usually desired in either of these conditions, hence, it is not so reliable in effects as the galvanocautery.

In order to increase its efficiency Norval H. Pierce and Max. A. Goldstien have devised instruments for its subcutaneous use. The subcutaneons method has not however, appealed strongly to the profession as the galvanocautery is easily and efficiently applied with equally good or even better results.

It should be remembered that chromic acid is quite irritating to the kidneys and may cause albumunuria. Its extensive use is, therefore, contraindicated in cases already thus affected.

The Technique:

a. Local cocaine anæsthesia.

b. Puncture the mucous membrane at the anterior end of the free border of the inferior turbinal.

c. Introduce a probe or other elevator through the puncture and tunnel the substance of the mucous membrane keeping near the periosteum.

d. Introduce the Goldstein concealed probe containing the bead of chromic acid into the depth of the tunnel.

e. Uncover the bead of chromic acid and withdraw it through the tunnel.

This cauterizes the walls of the tunnel within the mucous membrane.

If sloughening does not occur the result is very good.

Trichloracetic acid—This is valuable chemical caustic agent and is generally used in a 20 per cent solution. It has been employed chiefly in tuberculosis of the larynx and in connection with currettage, and in hypertrophied and diseased tonsils after splitting the crypt walls.

In laryngeal tuberculosis after the intralaryngeal removal of all the tubercular tissue available by this route, the operated area swabed with a 20 per cent solution of trichloracetic acid so as to destroy any remaining tubercular tissue, and to seal up the lymphatic openings to prevent the spread of the tubercular process.

Killian has recommended the free and deep incision of the crypt walls of the tonsil, especislly of those crypts opening into the supratonsillar fossa, and applying 20 per cent solution of tricholracetic acid to the incised surfaces. More than one sitting is usually required for this purpose.

The object of this proceedure is to destroy the diseased epithelial lining of the crypts and to cause cicatritial contraction. In this way the tonsil is reduced in size and its non-resistant epithelium is destroyed.

The acid applications are very painful for a prolonged period of time. This, together with the fact that repeated applications are often necessary, renders the proceedure an undesirable one. The complete removal of the tonsil by dissection is a more certain and desirable proceedure as it can be applied to both tonsils at one sitting, and does not leave the scar tissue which follows the acid applications.

The Nitrate of Mercury—A ten per cent solution of the nitrate of mercury may be used to cauterize deep sloughing syphilitic ulcers of the nose and throat, as it excites healthy granulation tissue, and thereby checks the sloughing and syphilitic ozena.

Antiseptic and Detergent Solutions--Cleansing the nose and throat with detergent sprays and washes is not as popular a proceedure now as formerly. Experience has shown that such applications exert but little curative action on catarrhal and the diseases. They do, however, promote a temporary increase in the serous element of the mucous membrane. Such solutions also stimulate the constrictor muscle fibers of the "swell bodies" of the turbinals and thus temporarily reduces the turgescence. The antiseptic action is probably but slight and of little value. The two useful effects of the antiseptic and alkaline nasal washes are therefore as follows:

a. Detergent or cleansing effects.

b. Muscular contraction of the interlacing fibers of the swell bodies.

c. And slight promotion of the reaction of inflammation.

The detergent and stimulating solutions recommended are as follows:

1. Seiler's Solution.
2. Dobel-Pyncon solution:

℞ Powd. Sod. bibor. (C. P.)

Powd. Sod. bicarb. (C. P.)	
Thymoline	Oss
Glycerin (C. P.)	Oiss

First mix and triturate the two salts and place same in a one-gallon bottle, adding one-half the quantity of glycerin; then let it stand twenty-four hours uncorked, with frequent agitations. Next add the remainder of the glycerin, and continue agitations for another twenty-four hours, with bottle uncorked as before. Lastly add the thymoline and let stand twenty-four hours, when it is ready for use.

These solutions may be used with an atomizer, a nasal douche or a syringe. They may also be used as gargles although the distinctly alkaline taste is usually disagreeable to the patient.

Oily Solutions For Use With a Nebulizer—Aromatic and antiseptic drugs may be added to an oily menstrum and thrown into the respiratory tract with a nebulizing device. The action of such mixtures is as an emollient or protective agent, and as a stimulant to the mucous glands. They also cause contraction of the circular muscle fibers of the arterioles and thereby reduces the congestion. The effects are transient and afford relief without exerting a marked curative effect.

The following formulæ are recommended.

CHLORETONE INHALANT.

1.	℞	Chloretone	gr. xv
		Camphor	gr. xxx
		Menthol	gr. xxx
		Oil Cinnamon	ad. m. v.
		Oil Petrolatum	ʒij

Mix.

ACETOZONE INHALANT.

2.	℞	Acetozone	xv
		Chloretone	vij
		Oil Petrolatum	q. s. ad. ʒiij

Mix.

The spray bottles and nebulizing bottles devised by DeVilvis have proven more satisfactory than any others as their construction is simple and they rarely need repairing or other attention.

The Bermingham Nasal douche is also a useful device for washing the nasal cavaties and is often preferable to the spray tube as it does not injure the epithelium of the nasal mucous membrane.

The air pressure allowable for spraying the various mucous surfaces with Devilbis spray aparatus:

a. The nasal mucous membrane, 4 to 10 pounds.
b. The epipharynx (nasopharynx), 8 to 20 pounds.
c. The mesopharynx (oropharynx) 10 to 30 pounds,
d. The hypopharynx and larynx, 10 to 30 pounds.

The air pressure needed for the Devilbis nebulizing bottle 10 to 40 pounds.

The regulating tank mentioned is of great value in conjunction with the spray and nebulizing tubes.

Solutions Producing Ischaemia.—Solutions producing local blanching of the mucous membrane are chiefly derived from the suprarenal glands of sheep. They produce a powerful contraction of the circular muscle fibers of the arteries lasting for several minutes. They are on this account of diagnostic and therapeutic value. They also reduce the amount of primary hemorrhage in certain operations.

The following formulæ are recommended:

1. ℞ Adrenalin chloride 1 to 1000.
2. ℞ Adrenalin chloride 1 to 2000.
3. ℞ Adrenalin chloride 1 to 4000.

It is rarely necessary to use the first formula except when there is a great deal of secretion in the blood which will dilute the solution. If applied to a clean mucous membrane the 2nd and 3rd formulæ are of sufficient strength to contract the vessels. Local Ischaemia is produced for diagnostic purposes in the various forms of rhinitis, and in reducing the engorgement of the tissues so as to admit of a view of the nasal chambers. Adrenalin is also used to check local oozing of blood after operations.

103 State Street.

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Claybaugh, William Ross, Wayne, Neb.
Cleveland, Charles William, 951 Harrison St., Chicago.
Cohen, Sylvan Gabriel, 220 Freemont St., Chicago.
Collins, Meta Viola, El Dara.
Conley, Bernard Montrose, Boone, Ia.
Converse, Blanche Elizabeth, Chapman, Kas.
Copenhaver, John Harvey, Bellflower.
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Xelowski, Thaddeus Z., Chicago

(To be continued.)

SENIOR PROPHESY.

It was a cold, stormy night. The snow was blinding. A thin, poorly clad, worn out mother walked along the slippery streets in vain search for a physician. All evening she had been trying to get a doctor to come and see her sick child, who was dying for want of medical treatment. When they saw who she was they were all "very sorry," but had "just received a call which must be answered immediately." Finally in desperation she had rung at the door of one of the most famous pediatricians in Chicago. The bell was answered by the physician herself, and she immediately ordered her automobile and was flying along through the dark, wild night to the wretched home of the mother who sat snuggly wrapped in furs by the physicians side.

Tenderly and quickly and with the skill which showed the thoroughness of her work during college days, she soon had the child out of danger and quietly sleeping and now she was preparing to leave. The mother glided quickly to the other side of the little room and pulled from beneath its carpet an old stocking and began counting out the nickles and dimes she had earned that week taking in washing. The physician, who many and many a times had received a hundred dollar fee for just such a visit, stopped and looked, and her bright, kindly face lighted up, and she stepped beside the mother, and throwing her arms around her, kissed her, and whispered something in her ear, and then turned and disappeared into the night.

I looked above the futurosdope to see the name of the physician into whose life I had been looking, and I read Dr. Ester Alice Hart.

Stepping to my left I read the name of Dr. Wilard Ermo Jenkins, our vice president. I knew without opening the futuroscope about what I would see. I knew he was located in his home town in Iowa, and I knew he would be successful, because all short, curly-haired people are. And then his work as a student must have necessarily placed him above the ranks of the mediocre. Anyway I opened the scope and confirmed my diagnosis. I saw him in western Iowa, located in a fine office, the general practitioner over a large scope of territory, driving day and night and with that same "something" about him which made him friends wherever he went. I stood listening to his telephone's continuous ring, when my guide called me over to look into the futurosoope of Dr. William J. Demorest Curtis. She was laughing and I knew there must be something funny to see. I saw the doctor in his finely furnished office, on the twenty-fifth floor of the "Murray" building in Graad Rapids, Mich. He was the only eye specialist in the city with the exception of his uncle, and that afternoon we saw him looking into the eyes (professionally of course) of a young lady I knew I had seen somewhere before. I soon recalled her as our clinic nurse in 406, and that afternoon the operation the doctor was performing upon her eyes was for habitual winking contracted years ago, when she was clinic nurse for the West Side Hospital.

The futuroscope which I next opened was Dr. Salvador Frank Joseph Mirabella. Another epidemic of scarlet fever was raging in Chicago. The doctor, who was president of the Board of Health, sat in his office in the city hall directing with his masterful mind. The physicians under his charge, among the number I recognized Dr. John Armone, Dr. Hans Scheffbauer, Dr. Charlotte Sekler, and Dr. Eric Kline Bartholomew.

Although the epidemic was one of the worst ever known in the city Dr. Mirabella, with his able assistants had it completely under control, and the newspapers and physicians all over the city were loud in their praise.

The next futuroscope opened and I looked "Away down south in Dixie." Dr. Arthur Jefferson Buchner has established one of the largest practices in Virginia, and his quiet, "always minding his own business" ways, had won for him innumerable friends. just like it had made him one of the best liked students during his college days.

Into the life of Dr. Charles Oliver Bulger, our old "Circus Solly," I next took a glance. He was a popular (by his cheery, jolly, untiring fun) with all the nurses now as he was when a student, and his large practice in Chicago enabled him to do many and many a nurse a favor by giving them cases, and they all liked him, and many an evening after office hours, his home was the rendezvous of little social gatherings, when fun and wit and taffy and popcorn helped divert the mind of the cares and strains of busy hard worked lives.

Following Dr. Bulger's futuroscope came Dr. Francis Earl Briqgs. I saw the doctor a noted obstetrician in Berlin in partnership with Dr. John Emerson Whitehill. I distinctly remembered their first case on Milwaukee avenue, during their college days in Chicago. It was that case that decided them to specialize in obstetrics with the result that Berlin and all Europe looked to them as the two leading accoucheurs of the day.

Dr. Joseph Louis Cunningham, our class treasurer, was located in one of the finest little cities in Wisconsin. His wife, whom he met in Chicago, was superintendent of the public school of the city, and every afternoon after school closed, she would come down to the office and fix up the doctor's ledger for him, because he was too busy a man to bother about such things. His office was always crowded. There was something about the doctor, although he never said much, you always knew he was your friend right, and it is that quality that the people like to find in a physician.

The next scope I opened was that of Charles P. Unger. The doctor was located in New Rochelle, only "forty-five minutes from State Street." He was the leading specialist in G. U. in the city, and to be a leading specialist in G. U. in New Rochelle, meant you were the busiest physician in the United States. The noted doctor had amassed a small fortune, and once a year he took a little trip to the city—you know it was only a forty-five minutes ride—and walked through the halls of his old Alma Mater, and looked at the pictures of his classmates upon the wall, among whom he had always stood "ace high."

The futuroscope I next stepped up to, was already open and I wondered why. I soon discovered the cause. I was looking upon the booming metropolitan city of Blandinsville, Illinois, which was threatening to rank ahead of Chicago in size and consequently the lid of the futuroscope had been forced open. On the sixtieth floor of one of the new sky scrapers, I saw the office of Dr. Ross Huston. Patients were going up the pneumatic tube to his office by the dozens, and the doctor greeted them all with a little chuckle and his inimitable "good fellow" manner which had won him his large practice. His dressing and examination rooms were the finest in the city and were in charge of his "cousin," a graduate of the Illinois Training School for Nurses, class '07.

(To be Continued.)

A WONDERFUL DISCOVERY.

Our genial superintendent, W. H. Browne, recently received the following communication and submitted it to the editor in the hope that it might contain matter of inestimable value to the medical fraternity, and might give impetus to investigation into hitherto unknown fields. The letter is published verbatim.

Chicago, Ill., Jan 17th, 1907.

Physicians

In reguards to prevent sickness a little mite. the peoples breath causes so much trouble.

Damp cool atmostphere person comes in large department stores, street cars, depots. school houses, many other places. the breath floats up near ceiling 48 hours falls down on ever thing. read on, to catch it. Cheapest kind of cotton goods fastened on ceiling in places near lights, or windows, sky light. renew ever two weeks. Person comes in building with cool and damp atmostphere a round, or hanging on there clothes draws these Germs to wards them. Streets cars heve them. hangs on to paper. Should be renewed in so many weeks, or months, always burn it to ashes. Window shades burn all so. or sponge them of on both sides with cold water with a few drops caribolic aCid, in water, this comes from my intellect. I find with left hand where there are. make use of this.

Yours of Hea—

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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A CARD OF THANKS.

Mrs. L. C. Gilbert and family and Mr. and Mrs. W. M. Gilbert desire to express their thank to the class of ’08, the Knights of Pythias of the class , and the classes of ’09 and ’10 for their kind attentions and beautiful floral offerings on the occasion of the death of Lenny C. Gilbert.

ALPHA OMEGA ALPHA.

In view of the fact that the nature and object of the society referred to under the above caption are not gener ally understood among the students of the college of Physicians and Surgeons, it may not be out of place to publish in the PLEXUS a short account of the history of the society. Alpha Omega Alpha from its name may be called a Greek letter fraternity, but more than this, it is an honorary fraternity bearing the same relation to the medical school that exists between the Phi Beta Kappa and literary colleges, and is at present the only fraternity of the kind in this country. The parent chapter was founded at the College of P. and S., of Chicago, in 1902, and the fraternity now has chapters in all of the principal schools of medicine in the United States, and recently granted a chapter to McGill University, of Montreal, Canada. The object of the fraternity is to recognize and encourage a high standard of scholarship and moral character among the students of medicine and members of the profession. Members of the faculty, students of the Senior and Junior classes, and members of the alumni of schools having chapters of this fraternity are elegible to membership and are chosen on the basis of the qualifications stated above, namely scholarship and moral character in its broadest sense.

At a recent meeting of the local chapter the following members of the Senior class were elected to membership and now wear the badge of the fraternity: Fred B. Clark, Geo. Davenport, A. M. Rodermund, Geo. Wassom and J. Graybeal.

SENIOR NOTES.

H. H. Seibert was operated on for appendicitis Feb. 5. Recovery seems probable at this writing.

Otto Gahl visited at the college one day last week. He wondered when the north entrance to the building had been built; didn't remember there being one when he went to school here.

Dr. Davis.—"Mr. Aaker, what diseases predispose to to orchitis."

Aaker.—"Chlorosis, in young girls."

E. P. Wagner was among the lucky ones who got an allowance of $25 per month for board at the County Hospital. Our ex-president looks as thoug he spent the whole business for the purpose mentioned.

Dr. H.—"Wood, give the symptoms of chlorosis."

Wood,—"Some girls who don't have chlorosis like to do that."

Examination question: Give treatment for retroversion complicating pregnancy.

Answer: Keep the patient in the knee chest position for five hours daily.

Quiz Master (quizing a roomful of *male* medics)—"Give the conditions which cause secondary anemia.

Wochos (hesitating, waiting for a tip behind)—Why-y-y"

Quiz Master—"What might happen to any of us here that would, within it a few minutes cause secondary anemia?"

Wochos (having collected his thoughts)—"Post partum hemorrhage."

Miss Crofut thinks the proper treatment for acute articular rhematism should be largely "suggestive". Here's two to one that she never had it.

Dr. Quine informs us that he has seen cases where a continuous stream of tubercular bacilli has passed right through the patient and never caused typhoid fever at all.

Prof. M.—"Among what patients do we find scorbutus?'

Curtis—"Among soldiers and sailors."

Prof. M.— "Does the uniform have anything to do with the disease?"

Curtis—"The uniform diet might have."

Chollenger is anxiously awaiting a report from his examination in Neurology. He wants to take Dr. Wiley's place as "authority" on nervous diseases.

The Senior Ball, given in honor of Dr. Quine's birthday will be remembered by those present, as one of the most enjoyable occasions of their college course.

The executive committee, and the special committees are to be congratulated on the event.

President Davenport in well chosen words presented to Dr, Quine, an elegant mahogany library chair, fall leather finished, as a token of respect from the class of 1907.

Dr. Quine replied in his own characteristic manner, so well known to his many students and friends. He infered from the nature of the gift that it meant for him to "go away back and sit down." He also led us to see him in imagination forty years hence sitting in that chair, endeavoring to unravel some of the mysteries of the opsonic theory.

The senior class extends the wish that many happy birthdays await our honored Dean.

JUNIOR NOTES.

The class regrets the loss of one of its members, S. C. Gilbert whose sudden death on Jan. 31st was due to heart failure following an attack of influenza. The remains were shipped to his home in Oakland, Ill. He leaves a widow and four children, and a profound sorrow among his classmates, who all recognized in him a friend and brilliant scholar.

Sanger Brown tells us how much the seniors know and then quizzes them, but they fail to produce the information. Cheer up. we may be in their place some day.

Wallace sleeps well in all classes now.

Heard in the gynecology lecture room: "We have an inflammation of Cowper's gland."

Lederer has a new and original method of warding off contageous diseases. He takes a policeman along on his trips. They never catch anything.

Neer:—"Give him strychnine"
Quiz Master:—"How large a dose?"
Neer:—"One sixth to one fourth grains."

Mikkelson combination: Aortic stenosis, mitral stenosis and mitral regurgitation with death sooner or later.

Among the complications of pneumonia, Herbert names endometritis. It is rumored that he will explain the cause at some future time.

Dr. Ballanger:—What is your treatment for acute rhinitis?"

Hayhurst:—"Remove the wet feet."

Lost:—Note book on junior medicine belonging to G. G. Gordon.

Found:—Notes on junior medicine belonging to G. G. Gorden. Call at locker 106 any time.

A prominent Junior nearly caused a riot by asking the simple question: "How much K I is he taking?" He was saved by his classmates.

Evans—An elective operation is one you can do but you don't have to do."

PLEXUS Puzzle—What girl does Clayton admire when he sits on the west side of room 303? Send answer to Puzzle editor, PLEXUS.

Yes, Clark is one athlete.

Articles have been signed for a fight between Durkee, commonly known as "Silent Murphy," and Browning, the Junior microbe. Copeland has been appointed referee, and Gooseberry rules are agreed upon, with biting and hairpulling when the referee is not looking. This last clause is to give them each a chance, Browning being shy on hair and Murphy has a good set of teeth. Ringside weight is to be 100 pounds. Murph can train down, but the microbes' supporters are a little fearful that their man cannot reach that figure. Time not decided upon yet.

Personal—Experienced matrimonial managers, marriage licences, police magistrates, newspaper reporters and well wishers furnished on short notice and at reasonable rates. Neimeyer, '08.

Gollobith advises the ingestion of bird-seed to increase the beauty and harmony of the voice. He calls attention to his voice as an example of what can be done. There is nothing enviable about the sample mentioned.

One of Dr. Williamson's dispensary patients complained of enlarged glands, and when asked where they were and how he knew it he pointed to his left clavicle and said "Here, this is some of them." The cause was probably in the man's cranium.

Dr. Eisendrath—"What do you mean by an intra uterine fracture?"

Junior, suffering with alopecia—"A fracture of a foetus."

The mustache race is still undecided, but McCormick seems to lead with Worthing a close and dangerous second. Marion, Bates, Conroy, J. O. Lunn and Lalor are stringing along in the rear. Dowd, Goembel and Berger have dropped out. Berger had them all beat if beauty had been the deciding feature or if the ladies of our class were the judges.

Word has just been received of the death of Dr. Newton, which caused universal sorrow and regret among those of the class who were attending his clinics at the West Side Hospital.

RESOLUTIONS.

WHEREAS, Death has removed from our midst our classmate Lenny C. Gilbert, and

WHEREAS, In his demise each one of us has lost a true friend, geneal, straightforward and solicitous, the class collectively has lost a brilliant and conscientious student, a stalwart and conservative leader. A career which gave the greatest promise of fulfilling the physician's true place in life has been prematurely ended. Therefore, be it

Resolved, That we, the Junior Class, of the College of Physicians and Surgeons of the University of Illinois, do hereby take this opportunity to express our profound respect and admiration for the deceased, and to extend our sincere regrets and sympathies to his family. Furthermore be it

Resolved, That these resolutions be published in the PLEXUS and an engrossed copy of them be presented to his family.

E. R. Hayhurst, }
G. A. Grinde, } Committee.
A. Hartung, }

Jan. 30th, 1907.

FRESHMEN NOTES.

Pulley's side-burns have mysteriously disappeared.

Dr. Wynekoop—Mr. B., what two kinds of epitheleum have we?

Mr. B., (voice in the rear coaching)—Well dares de squan.

Dr. Wynekoop—And the other is?

Mr. B. (The voice in the rear coaching, simple calumner)—Streets culumba.

Dr. Wentz—Mr. Jackson, what is an atom?

McGuary (sleeping in the rear)—Did you call on me doctor?

Dr. Wentz—No, I didn't mean to disturb you till 12 o'clock.

Dr. White—Mr. Borther, what muscles have we attached to the first rib?

Borther—Glutenns maximus.

Miss Laborn and Mr. Vitello, who have been sick the last two months, are again back in classes.

On January 31 the class was very much shocked to hear of the sudden death of Dr. Gilbert. The doctor, by his courtesy and kindness had already won the respect of the class, and to show our sympathy a collection of $10.80 was taken to purchase a floral design, and a committee appointed to draw resolutions.

We, the committee, in behalf of the members of the Freshmen class, in appreciation of the kindly interest taken by Dr. Gilbert in our work in the chemical laboratory, hereby tender our heartfelt sympathy to the bereaved family.

Be it resolved that a record of this be spread upon the minutes of the class, and a copy be sent to the family of the deceased.

L. W. Cary,
E. M. Bentzien,
Fred C. Harker,
Committee.

SOPHOMORE NOTES.

No little sentiment was aroused and expressed among the members of the Sophomore class over the fact that they would be required to purchase a five dollar Cook County ticket to get off autopsies. The slight addition of between four hundred and five hundred dollars to the class expense seems to have been overlooked when the work was reverted to the Sophomore year. However, the matter was adjusted satisfactorily to all parties concerned.

On Feb. 6th the first autopsy was due, and the class braved the zero weather only to learn there would be none that morning.

Prof. Santee—"Willard, name a process of the falx cerebri."

Willard—"External occipital protuberance."

A bunch of Sophomores were using a female cadaver in the museum a few days ago to refresh their minds on a few anatomical points, when Murphy suddenly exclaimed: "Say fellows, can any of you show me the 'helum' on this cadaver?"

The sorrow of the Juniors when their beloved classmate Mr. Gilbert, passed away could not have been greater than that of the Sophomore class. As a quizz master he was inferior to none, and his optomistic mood, his sunny smile and cheerful laugh endeared him to the hearts of all with whom he came in contact. The foundation of a future structure of unsurmisable greatness—the tedious toil of many years—was uprooted and destroyed, just as the brightness of the great beyond seemed at hand Truly the world cannot well afford to loose such men as Mr. Gilbert proved himself to be.

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OF THE UNIVERSITY OF ILLINOIS.

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WILLIAM B. DAY, Editor-in-Chief.

CLASS EDITOR:
P. O. Martin, '07. W. D. Motter, '08.

THE ADVISORY BOARD.

The trustees of the University of Illinois have appointed Harry W. Giese of Bloomington as member of the Advisory Board of the School of Pharmacy to succeed Mr. W. K. Forsyth of Chicago, whose term expired December 30th, 1906, and have appointed Mr. Forsyth to fill the vacancy on the Advisory Board caused by the death of Albert E. Ebert.

The Illinois Pharmaceutical Association annually submits three names to the President of the University, and from among these three the successor to the outgoing member for that year is selected.

Mr. Giese is an alumnus of the School of Pharmacy, an officer in the McLean County Druggists Association and a prominent pharmacist of Bloomington. Mr. Forsyth has been known as one of Chicago's foremost pharmacists and has for years been actively indentified with both the local, state and national organizations.

DEAN GOODMAN ILL.

Professor Goodman was taken seriously ill February 3rd, and has been confined to his bed since then. Typhoid fever is threatened, but at the last reports he had improved considerably and his early recovery is hoped for.

Professor Day has taken the classes in botany and materia medica until the Dean's return.

ALUMNI NOTES.

Arthur E. Curtis '05 has purchased the pharmacy of J. M. Kline & Son at Rock Falls, his home.

George E. White '06, and J. M. Donohue '04, have recently become benedicts.

W. T. Klenze '85, C. A. Webster '84 and John H. Harsch '92 are on the voting card as nominees for the Board of Pharmacy this year. C. C. P. Alumni will remember them with votes.

Ethelyn B. Arnold, an honor student of the Class of '06, has recently passed the state civil service examination for pharmacist at the Eastern Illinois Asylum for the Insane and has received the appointment. The position is a responsible one.

SENIOR NOTES.

A rather serious fire occurred in the boiler room of the school, January 31st, which necessitated the shutting down of the heating plant and the closing of the school for the day. The blaze started about 7 o'clock in the morning and by the time the students arrived it was all over. The loss was small and covered by insurance.

The seniors sent to Dean Goodman a message expressing their sympathy in his illness and their hope that he would soon be able to meet his classes again.

Mr. Gathercoal has organized a class in bacteriology. Eight seniors are taking the work, which is optional and for which no charge other than for materials is made. This is the first laboratory instruction in this branch that has been given at the School. The work has been most interesting and the class is making good headway. The members of the class are K. B. Blahnik, George Eisele, Jacob Goodman, J. J. Krzemieniewski, I. W. Lindley, P. O. Martin, J. J. Pfaff and E. C. Wach.

The special lecture on "Sponges" was well attended. It dealt purely with the commercial features; the trade in sponges; commercial qualities and practical hints on the selection, keeping the sale of these useful articles. The lecturer, Mr. Schuler, is manager of the sponge department of one of the large wholesale druggists in the city and is well known to the trade. His talk was greatly appreciated.

The Beta Chapter of the Phi Gamma Sigma Fraternity was organized at the school during January, with fourteen members. Its objects are to promote good fellowship and to increase the efficiency in scholarship of its members.

At a class meeting held February 8th, Mr. Lotis L. Huston was selected as salutatorian and Mr. J. P. Lee as valedictorian for the commencement exercises, which will be held in the Y. M. C. A. auditorium, Thursday afternoon, April 25th. The class invitations have been ordered of Elliott.

Hollnagel evidently likes botany. He wore a large bunch of flowers at a recent lecture.

J. H. Christmann, class photographer, took a flash light photo of the bacteriology class in action.

Karel B. Blahnik will have charge of his father's store from now on. We wish him much success.

Several of the seniors have given up their relief positions and will give all their time to study for the remainder of the term.

Quite a number of the boys will take the State Board examination on the 19th.

P. O. Martin, Senior Reporter.

JUNIOR NOTES.

Just you wait
Till 1908
For Ph.G.

In Pharmacy
Shout "Ship Ahoy"
For Illinois!

'Excipients and their Uses" is the title of a text book which Bryon Davies will write one of these days.

The physiological effect of Tincture of Belladonna, the dose and the antidote for the same can be described in detail by Otto Stoeffhaas.

Cazel was a little late in getting back to classes after the holidays, but has "resolved" to start the New Year right.

Pellett and Mastandrea failed to return after the Christmas vacation.

A good many of the Juniors will try for the coveted certificate of registered assistant at the State Board Exam. this month. Good luck to you, boys.

W. D. MOTTAR, Junior Reporter.

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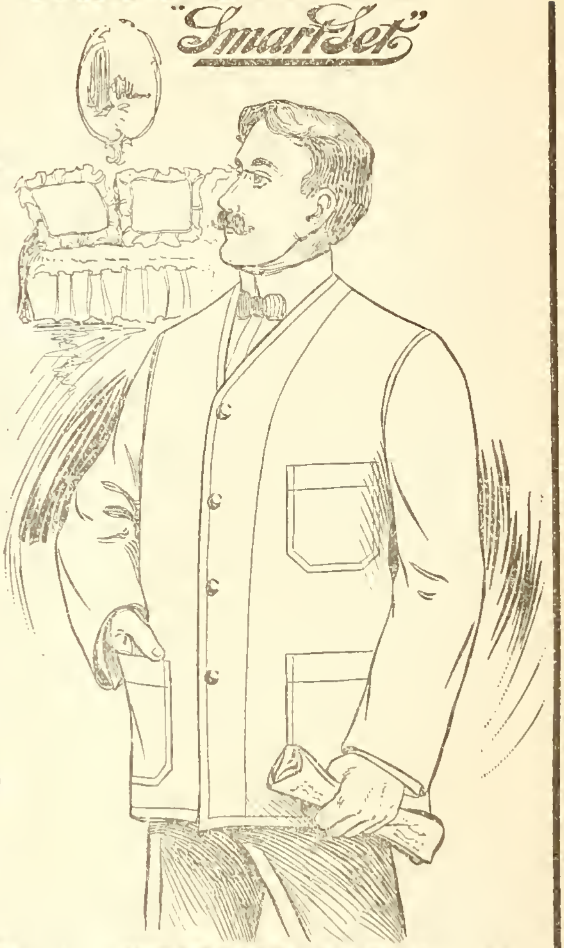

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THE PLEXUS
COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT OF THE
UNIVERSITY OF ILLINOIS,
CHICAGO.

VOL. XIII. BATAVIA, MARCH 20th, 1906. NO 3.

A NOTE UPON THE NEW VIEWS OF APHASIA.

L. HARRISON METTLER, A. M., M. D.

Associate Professor of Neurology in the College of Medicine of the University of Illinois. Neurologist to the Cook County Hospital, Chicago Hospital, and Norwegian Lutheran Deaconess Home and Hospital, etc.

There is at present an interesting and lively discussion going on among neurologists as to the nature of aphasia. The tyranny of mere precedent and authority is revealed in the way that old conceptions, though shown to be very questionable, are tenaciously clung to. While every new idea is, of course, not to be accepted prima facie as correct and final, proofs which, in the course of the evolution of the new are brought forward to demonstrate the weakness of the old, deserve the most careful consideration. Science is above all things progressive and the moment mere authority and ancient reiteration assume the dominant control, that science should be looked upon somewhat askance. Excessive conservatism is as dangerous in science as is excessive radicalism. In view of this fact the new views upon aphasia should be studied carefully, weighed, and proved fully before being entirely adopted; and, per contra, they should not be indifferently passed by because, forsooth, they don't happen to agree with the notions that we have hitherto dogmatically held.

Up to the present time it has been universally believed and taught that a lesion of the third left convolution of the brain (Broca's center) is the cause of motor aphasia. We have been informed that this center subserves the formation of those psychic, or representative memory pictures which the mind must preform or establish in itself before the proper co-ordinations can be executed whereby language is uttered either by the lips, tongue, etc. in articulate speech or by the hand, arm, etc. in writing. In other words it has been maintained by most physiologists that the third left frontal convolution, near its base, is the emissive center for the symbolic expression of our ideas. Even those who locate a center for agraphia at the base of the second left frontal convolution, lean strongly to the view that this center instead of being a true writing center is merely the place where the impulses pass on their way from the emissive language center (Broca's) to the arm and hand centers in the precentral convolution. In other words the view has largely been that all language, whatever may be its ultimate, outward mode of expression, in its emission has had to pass through Broca's center. Hence Broca's center has come to be known as the cortical area subserving motor or emissive speech; and as in many cases lesion of this area or its immediate underlying connections seemed to be associated with a psychic, representative defect of speech, the explanation gradually became accepted that this area subserved, in regard to speech, not mere motility but the necessary memory (psychic) pictures preceding motility. Damage to Broca's center therefore was believed to cause motor aphasia, not mere paralysis of the muscles concerned in speech as in anarthria. We have been so sure of this heretofore that we have employed the symptom motor aphasia, to locate the lesion more or less in Broca's convolution.

Now we are becoming skeptical of this interpretation of the physiological function of Broca's center. We are reviewing more carefully our grounds of belief and are finding them to be not so strong as we had fondly imagined. We are analyzing more carefully the nature of language and the nature of its disturbances as seen in disease, and we are discovering that we have been somewhat too dogmatic and arbitrary in some of our conclusions. It is for this reason that I wrote over two years ago (*Diseases of the Nervous System*, 1905, p. 716), "It has always seemed to me to be a crude conception of psychological processes of all sorts to suppose that they were each individually under the absolute and sole control of certain small are as in the cortex. The sharp differentiation made by some physiologists between the cortical centers, the narrow way in which they limit them and the distinct functions which they assign to them, as though there were hardly any commingling or inter-connection between them, has long seemed to me to be puerile, grossly materialistic, and absolutely unwarranted by any scientific proof worthy of the name."

Now comes Marie (*La Semaine Medicale* May 23, 1906; *Ibidem*, Oct. 17, 1906), whose eminence and distinguished work in clinical neurology must always command the highest respect, declaring that Broca's center is not the center of emissive speech in the sense that we have hitherto been regarding it. Motor *aphasia* is not dependent upon a lesion of the base of the third left frontal convolution. He shows that such a belief is founded upon inadequate data and a false interpretation of the data that there is. It moreover is contradicted by an analysis of the very nature of language.

Fraenkel and Onuf (*Zeitschrift fur Nervenheilkunde*, xv, 1899, p. 319) collected 104 cases of aphasia and only seven revealed a lesion limited to Broca's center. In five of these cases the aphasia was merely temporary and in only two was it at all permanent.

Dejerine (*La Presse Medicale*, July 18, 1906), after studying the subject of aphasia for more than twenty-five years, has not been able to bring forth any confirmatory evidence from his own personal observations, but founds his argument for the speech function of Broco's convolution upon the two cases of Bernheim and Ladame. Marie quickly explained away Bernheim's case, while Ladame himself has volunteered the information that he has not yet completed the study of his case.

Marie maintains, after a long and close study of the subject, with a careful analysis of cases, that *the essential characteristic of aphasia is an intellectual deficiency:* that aphasia is a *unit*, not being made up of sensory aphasia on the one hand and of motor aphasia on the other, but that *it is the result of a lesion of the Zone of Wernicke*, this lesion establishing an intellectual deficit for the comprehension of spoken language. He argues that Wernicke's Zone (namely the supramarginal gyrus, the *pli courbe*, and the posterior portions of the first two temporal convolutions) is implicated in Wernicke's aphasia or so-called sensory aphasia. In so-called motor aphasia there is in addition to the lesion of Wernicke's Zone, implication of the region of the lenticular nucleus, but lesion of the lenticular nucleus causes *anarthria.* Therefore so-called motor aphasia, or Broca's aphasia, is simply Wernicke's aphasia *plus* anarthria. From this point of view Marie holds that he is justified in affirming that Broco's convolution does not play any role whatever in aphasia. The involvement of Broco's center in these cases of aphasia is a mere coincidence and nothing more.

We all realize how difficult it is at times in cases of intracranial apoplexy to determine whether a patient's speech disturbances are anarthric or aphasic in origin. Sometimes it seems as if the patient possessed full power of movement in the lips, tongue, etc., but could not think out clearly what he had to say. At other times it seems as if the thinking process were clear enough, but the motor disturbances (not paralysis but a sort of incoordination, mildly spastic paresis, or cerebral anarthria) interfered with the speech. And finally at other times there is clearly distinguishable an actual muscular immobility or flaccid paralysis of the speech muscles. The first group of cases representing a disturbance of the psychic or intellectual function of language, are, as I understand Marie, the only cases of *aphasia.* The second group, representing a cortical or subcortical lesion involving more or less Broca's center, are cases of *cor-*

tical anarthria and are analogous to the cortical paralysis of the arm or leg. In these cases of the second group, aphasia may be present also, in fact not unfrequently is present. In the latter instance the lesion involves both Wernicke's Zone (the aphasia) and Broca's center (the cerebral anarthria). The third group of cases represent of course the well-known bulbar lesions that lie behind the *bulbar anarthria,* the muscular paralysis in this instance being analogous to the well-known types of flaccid spinal palsy. In pseudo-bulbar palsy, and in lesions of the internal capsule, anarthria and dysarthria occur, but not aphasia, unless the latter is present because of an additional lesion in Wernicke's Zone causing it. Clinically the articulation seen in pseudobulbar palsy is very much like that in many cases diagnosed as aphasia. In the second group of cases, when exhibiting symptoms of combined aphasia and anarthria, the former resembles a mental trouble, and the latter approximates the articulation seen in cases of pseudobulbar palsy and unilateral or bilateral lesions of the internal capsule. The resemblance is suggestive and supports strongly Marie's contention that aphasia is due to damage of Wernicke's Zone, while damage to Broca's center results in a cerebral anarthria.

In a recent article, Dercum (*New York Medical Journal,* Jan. 5, 1907) carefully reviews fourteen of his cases of aphasia and three of pseudobulbar palsy for the purpose of testing Marie's idea in regard to aphasia being the result of an intellectual deficit. He says: "I at first attempted to classify these aphasics, as formerly, into motor and sensory, and I signally failed; I was merely able to group them into aphasics in which motor speech disturbances were less pronounced or perhaps absent. All presented sensory elements. All of the fourteen aphasics exhibited in an unmistakable manner the intellectual deficit claimed by Marie."

Dercum carefully outlines the tests he made to determine this intellectual deficit, following the suggestions of Marie. Then he continues, "the motor speech difficulty appeared in each of the cases studied by myself, as something added to the essential symptoms of the aphasia; an anarthria added to the special intellectual deficit—the failure to comprehend words or sentences—which constitutes aphasia. It would seem that Marie's contentian that aphasia is a unity is well borne out by the clinical facts." In conclusion of the whole matter, Dercum writes that "it must be conceded that Marie's view is very attractive. It would indeed appear that aphasia is in reality a unity, that it consists not in a word deafness, not in a word blindness, not in an inability to utter words, but in a difficulty or impairment of the faculty of comprehending language, and that it is due to lesion of the Zone of Wernicke. Whether in a given case anarthria is also present depends entirely on the concomitant involvement of the inferior longitudinal fasciculus or isthmus in its passage to the lenticular nucleus and involvement of the lenticular nucleus itself. Whether in a given case on the other hand, alexia is also present depends upon the involvement of the inferior longitudinal bundle posteriorly in its passage to the visual centers of the occipital lobe."

While it may be true, as has been said, that "Marie's utterances upon the subject of aphasia are both remarkable and revolutionary," it seems to me that they are only partly so, and for the reason that hitherto we have been too narrow in our conception of language, of the relationship of language to normal psychosis or mentalization, and of the relationship of psychosis or mentalization to brain function and cortical localization. It has for some time past seemed to me that in some particulars a reaction would sooner or later set in against many of the accepted notions in regard to the functions of the brain, when the latter were more carefully and scientifically studied from the standpoint of psycho-physiology rather than from the standpoint of anatomy alone or psychology alone. May it not be that Marie's contentions are but the beginning of this reaction?

More than two years ago (loc, cit. p. 717) I insisted that "speech, reading and writing are not mere motor and sensory phenomena. They are the expression of a high order of psychosis. It follows therefore that they are not subserved alone by fixed small centers in the cortex, but by most complicated intra-cerebral mechanisms, of which the so-called cortical centers are but the prominent outposts, as it were. All statements, therefore, such as that the anterior lobes subserve the higher mental powers; *that Broca's center regulates motor speech*; that the occipital lobe is the memory center for visual images must be taken only relatively."

In discussing the disturbances of language (loc. cit., p. 763), I pointed out the same tendency to narrowness of view in regard to speech, that Marie, Dercum, Morat, Campbell and others have lately pointed out. I urged (p, 765) that "the fact seems to be lost sight of by some physiologists in their discussion of the cortical speech centers, that language is a psychic and not a mere physiological phenomenon. It is the outward panorama, as it were, of ideas. Ideas being shown to be complex and compound processes, it must follow that language based upon them must have a compound and complex structure. It is therefore useless to look for specific centers in the brain for the elaboration of psychic manifestations, which in their very nature show that they are compounded of many psycho-physical processes. Physiologists are awakening to the fact that speech centers such us they used to be thought of, do not exist in the brain. Under no circumstances are we justified in attributing the function of speech to any one cortical area or subcortical tract. Disturbances of language, then, are psychic symptoms. Aphasia does not mean paralysis in the sense that anarthria does. It means merely psychic paralysis for language. It stands for a loss of the memory pictures of speech, the loss of the power of symbolizing one's ideas." This is the "intellectual deficit," the loss of the power of comprehending words and sentences, which Marie is now contending is the essential characteristic of aphasia and which is due to a lesion of the Zone of Wernicke and not in the least to a lesion of Broca's area.

To sum up the whole matter I wrote (loc. cit.. p. 768), "language is the product of an associative process; not of mere cell activity per se. It is a psychic phenomenon resulting from interconnections between sensory and motor elements. The so-called centers of language are merely the points at which some of these fundamental inter-connections are most obviously brought about. Aphasia is the result of a break somewhere in the network of inter-connections. If the break is at the so-called centers. the aphasia may be grossly and wholly motor or sensory in type. If the break is between the centers it may merely sever the motor from the sensory side of the complexus, or it may sever one form of motor from another form of motor element in it, or one sensory from another sensory element in it. As the interconnections are fine and innumerable, so the ruptures may be fine and innumerable.

Campbell in his recent magnificent work "Histological Studies on the Localization of Cerebral Function," 1905, p. 223, follows the same general line of reasoning and says: "We must assume from clinical evidence that the cortex covering the small area of Broca does not wholly represent the seat of government of the motor element in speech."

And thus it would appear that Marie's utterances are not so entirely "remarkable and revolutionary," though it may be granted that they are more pronounced and authoritative than are some of the earlier utterances of other writers. Marie has but indicated, more plainly perhaps, the reaction against the narrow conception of language and of its disturbances in disease which some of us clearly saw was necessary and approaching.

ORAL PATHOLOGY AND ITS RELATION TO GENERAL DISEASE.

By T. B. Wiggins, M. D.

Adjunct Professor of Medicine University of Illinois.

At this time when dental surgery is taking its rightful place as one of the great specialties of medicine, it is profitable to note how dependent the general well-being of the human body is upon the health of the buccal cavity. Even to the most superficial view it is apparent that the day is not far distant when the perfectly equipped dentist must possess a medical degree. On the other hand, the successful diagnostician finds many an obscure case made clear by a profound acquaintance with oral pathology.

In the domain of surgery the knowledge of the causes of oral sepsis (1) has made possible great improvement. This is most clearly shown in the results of such operations as excisions of the tongue, removal of the maxillæ, operations in the nose and throat and for cleft palate, in all of which the results are more perfect because hemorrhage and septic infection are uncommon, and secondary infections, as pneumonia, parotitis and erysipelas are almost unknown. (2) The importance of a priliminary sterilization of the mouth, and of all foods prior to operations on the stomach and bowels is universally recognized and the profession is indebted to Harvey Cushing (3) of Baltimore for their knowledge.

Dental bacteriology is still in its infancy, but much good work has been done in this direction by both dentists and physicians, among whom may be mentioned Miller of Berlin, Vignal, Fluegge, Sanarelli, Netter, Arkovy, Black, Goodby, Leving, and a host of others.

The knowledge thus obtained is of great benefit to the physician as well as the dentist, for in the mouth are found local lesions of many acute infectious as well as constitutional diseases. Among such diseases we may mention smallpox, varicelli, diphtheria, influenza, measles, scarlatina, tuberculosis, diabetis, scurvy and syphilis. In a number of these the specific micro-organisms are present—notably in tuberculosis and diphtheria. Many of the diseased conditions found in the mouth and contigious structure are due to the pathogenic micro-organisms. Of these we now recognize tuberculosis, thrush, anthrax, actinomycosis, erysipelas, ulcerative and gangrenous stomatitis, pyorrhea alveolaris and dental caries. These organisms unless guarded against may at any time infect wounds made in the course of surgical or dental work, resulting in a general pyemia or septicemia. Indeed many deaths are on record following the extraction of a tooth, which may be thus explained. Speaking broadly, it is not an exaggeration to state that the sourse of most suppurative conditions of the face and neck is in the mouth.

Again, food, air and drink taken through the mouth may introduce a variety of disease producing germs, which find in the warmth, moisture and organic mateiral present a perfect culture media. Levings (5) has found from a study of the bacterial contents of one hundred healthy mouths of various degrees of cleanliness, and eighteen mouths, the seat of some pathological process, that both pyogenic and pathogenic germs are present in healthy, clean mouths, but their number is greatly increased in filthy mouths, and those the seat of pathogenic processes. Twenty examinations of clean mouths showed staphylococci present in almost all; micrococcus tetragenus in 15; pneumococcus in 8; sarcinæ in 6; streptococcus in 2; of the bacilli, all shapes, sizes and varieties. The baccilus prodigiosus in 1, and in all cases large number of acid and gas producers, as the bacillus acidi lactici, bacillus butyricus, etc. In ordinary kept mouths more bacteria were found than in clean ones, the putrefactive bacteria being markedly increased, and in two of the group the baccilus of influenza was found. In the filthy mouths examined, millions of bacteria were present and a large number virulent. The pneumoboccus was found in 10 of 20 cases, and in two thrush was present and its organism demonstrated.

The number of acid and gas-producing organisms were greatly increased. In the tobacco chewers' mouths acid and gas-producers, putrefactive bacteria, sarcinæ and fungi were numerous and the baccilus and influenza, friedlander's bacillus; staphylococci and streptococci were isolated. This is directly in opposition to the popular idea that tobacco chewing protects the teeth from decay and proves that tobacco has no restraining influence on the growth of bacteria. As a result of experiments made to determine the number of bacteria thrown from the mouth in ordinary conversation, forced expiration and coughing, plates exposed at various distances up to twenty feet showed from 235 to 23 colonies. A plate exposed in front of a mouth covered with three thickness of gauze developed eight colonies.

This should be sufficient to make it imparative that surgeons, especially in abdominal operations, sterilize their mouths as perfectlp as possible prior to operations, cover the nose and the mouth with at least four thicknesses of gauze, and avoid all unnecessary conversation. Latham reports having found gonococci in two mouths, and traced the infection to dirty hands. There was marked inflammation, pain, loosening of the teeth and a greenish slimy condition of the gums with slight fever. Purulent discharges in the mouth as from abscesses, pyorrhea alveolaris. etc., passing into the stomach are often the source of a general catarrh of the digestive tube. Gingivitis (6) is a gouty sign strictly identical with the similar congestion of the anatomically like structure, the sublunular fold of the gouty man's finger tip. It developes into pyorrhea alveolaris, or it dwindles and becomes the atrophic or receding gum of the gouty. Dr. D. E. Langenhagen draws attention to the frequency of inflammation of the gums and the buccal mucosa generally in case of colitis. This shows how nearly related colitis is to sprue. It is of interest to note that in colitis the saliva is acid, as can readily be proved by testing with blue litmus paper. Now acid is one of the two well known reagents which possess the property of coagulating mucin, and this undoubtedly explains the viscid character of catarrhal secretions in contra distinction to the glycerin-like secretion of mucous surfaces in a state of health. The saliva is found to be acid in 40 per cent of the cases of acidity of the stomach and its alkalinity is lost and it becomes neutral or acid in such acid conditions of the system as are associated with gout, rheumatism and rheumatoid arthrites. The majority of such cases show at the beginning a gingivitis with a succeeding pyorrhea alveolaris, which conditions become aggravated by the periodical acidity of the saliva. At such times the greatest benefit results to the teeth and sockets from a purely antacid treatment and we all recognize the value of alkalies locally in the mouth and injury from acids.

A general catarrh of the entire length of the food tube which we may call "tubal catarrh" will most often have its origin in the mouth. It manifests itself as an inflammation of the gums and baccal mucosa, generally classed as a scorbutic condition. The chief predisposing causes in the infant are heredity and malnutrition; the direct cause, neglect of the mouth, allowing food to accumulate about the teeth, thus allowing putrifactive bacteria to dissolve the albuminous substance and the dentin decalcifies. Thrush often developes. The gums and teeth become congested and tender, the food improperly masticated, is delayed in the stomach, ferments and causes dilation, gastric and intestinal troubles, resulting finally in diarrhea, entero-colitis, dysentery and appendicitis. Acute attacks often follow each other, becoming finally subacute and chronic.

Poorly selected and scanty food consumed by the mother before the birth of the child predisposes to just such conditions. When the child is born pure milk is difficult to get and the many patent foods used instead at that critical period have a lasting effect upon the succeeding dentitions. As the child grows up the error in feeding is accentuated. The necessity of grinding the food is replaced by machinery and cooking. Primal man used his teeth for grinding purposes, in triturating vegetable substances in order to liberate the starches from their indigestable cellulose envelope. Civilized man has attained the same end by milling and cooking and we see the result in the gradual disappearance of the last molar.

Every patient should be taught that perfect health is impossible without perfect mastication, and that perfect mastication is impossible without a good grinding mill. Two molars in good order should be able to come in complete contact with two other molars. There is no proper trituration of vegetable food unless this state of things be present. In other words it takes at least four molars to make a mill. . People should be educated in common cleanliness as to the teeth and as to their proper employment. They are not only not taught in early life to use the teeth vigorously, but everything is done to make their employment unnecessary. Witness the flood of prepared breakfast foods and predigested so-called health foods. It has indeed been shown by one of the most sagacious and philosophic of modern physicians that in ordinary life the jaws are not used properly in chewing the foods, that the tendency of civilization in providing implements for the subdivision of the foods and supplying children with food which is practically ready chewed for them is leading slowly to the degeneration of the jaw and disappearance of the teeth.

This fact is recognized by dentists, and in a recent paper (7) on this subject the essayist concludes "that with the superior intelligence of divilized man, assisted as he is by milling and cooking, the actual necessity of teeth is almost nil. Physiology proves that the chemical action of the saliva is so soon cut off by the hydrochloric acid of the gastric juice that this action might be dispensed with and that moistening and lubrication can be replaced by various beverages." While this may be allowed, and while we all know many old people entirely without teeth who live on a liquid and semi-solid diet for many years, apparently in as good, or it may be better, health than many who have their natural teeth or artificial dentures, we must still believe that man now and many generations yet to come will only maintain the full vigor of health by a careful preservation of these organs.

It is very curious that while physicians never omit to examine the tongue carefully, the teeth are as a rule not even noticed. Why do they not bestow an equal amount of time to a careful examination of the teeth? These latter tell us a great deal more than the changing tongue. This tells us most of the present, while the teeth are the landmarks of the past. Their number, size, shape, position, substance, color and cleanliness are of infinite importance to the owner. The condition of the gums is eloquent of past diseases, present health and future possibilities. To mention only a few of these: Scurvy, salivation, saturnism, heriditary syphilis, gout and all the vast family associated with anemia. Markings (7) in the form of opaque spots and corrugations are certain traces of periods of interrupted nutrition that have occurred perhaps years in the past when the enamel was soft and impressionable. Pits in the enamel are quite commonly ascribed to the occurrence of the eruptive fevers during the period of detention—the presence of Hutchinson's notches is regarded as absolute proof of hereditary syphilis, though some believe that they may be caused by the use of mercury to salivation. The transverse corrugations point to an antecedent rheumatism, the result of auto-intoxication. The longitudinal lines result from intestinal indigestion and are especially prominent following colitis, protitis and hemorrhoids.

Dentists should be very careful when there are sores on the lips, tongue or mucous membrane of the mouth, and if in any doubt as to their character should seek medical advice lest they expose themselves and patients to the dangers of syphilitic inoculation. I have seen many instances of the primary lesions of this disease on the lips or in the mouth.

Such a common and usually harmless affection as leukoplakia demands that treatment should be instituted as it may be the beginning of epithelioma and is often mistaken for the lesions of syphilis.

Epithelioma is the most dreaded and therefore the most important disease of this region. Many cases of epithelioma of the tongue, lips and cheeks owe their start to the irritation from rough or decayed teeth, or fillings poorly finished, neglected or broken down. When a cancer is suspected, immediate excision with subsequent treatment with X-rays saves many lives.

Localized tuberculosis is frequent in the mouth and is often mistaken for syphilis. Tuberculosis of the tonsil is common, especially in children, and is usually associated with nasal obstruction due to the growth of a low type of cellular tissue with adenoids in the upper pharynx. The consequent defective development of the lungs , and the statistics which show that one-fifth of comsumptives are mouth brethers and that projecting teeth, together with these conditions, may produce phthisis, are points worthy of remembrance.

Disease of the teeth and jaws produces perhaps its most frequent and plainly recognized effect on the general system in a reflex manner through the nervous system. Thus headache, neuralgia of the trigeminal nerve, and many painful affections of the eye, ear and nose have in my experience been relieved by tqe care and skill of the dentist. Campbell (9) records three cases of iritis, with no history of syphilis or rheumatism. In all three were marked evidence of oral sepsis; gums bled easily, pyorrhea alveolaris was present and the breath had a sour smell. The mouth was rendered as pure as possible and under this treatment, with tonics and mydriatics a quick recovery occured in all cases.

Finally in acute febrile diseases which are accompanied by sordes on the teeth, the event may often be determined by the care with which the mouth is sterilized. This prevents the gastric and intestinal fermentation, which would otherwise be set up by swallowing the contents of the unclean mouth.

In this way nutrition is better maintained; the blood being thus replenished, gives to the cells of the whole organism a better supply of nutritive pabulum and bodily resistance is thus able to more easily overcome the bacteria and toxins of the disease.

All causes that lessen the resistance of the tissues to injuries may be classed as predisposing causes to pyorrhea. Among these we may mention acute and chronic infections, and such constitutional diseases as rickets, chronic dyspepsia, metal intoxications and diabetes mellitus. In a word, errors in metabolism resulting in a more or less severe grade of auto intoxication due to the retention of the normal products of oxidation, or the absorption and retention of elements abnormal to the organism. Local disturbances and bacterial infection complete the triad of causes productive of pyorrhea. Up to this time no specific organism has been proven to cause the disease, so that we may assume that it results from a mixed infection. From what has been said of the flora of the mouth it is plain that any slight lessening of resistance of the tissues of this region favors the growth of the pyogenic and pathogenic bacteria present. In diabetes we have an excellent example of the action of any disease in the production of a general lessening of resistance of all the tissues of the body. In this instance the bacteria of the mouth become virulent and active. The acid reaction of the saliva is marked in diabetes—one of the signs of the saturation of the body with acids. This acidity calls forth an increased neutralization by the alkaline earths of the tissues which are held in solution, according to Naunyer, by the carbonic acid and poured out by the saliva. The CO_2 becomes liberated in the mouth and the precipitated lime salts are deposited upon the teeth. This accounts for the very rapid formation of tartar in diabetics.

The prevention of oral disease we thus perceive, is the prevention of many systemic and general diseases which often destroy life. Such prophylaxis must begin with the pregnant mother, who must be so cared for that she may form plenty of pure blood so that the future child may be abundantly nourished. Fresh air, sunshine, exercise, good food and cleanliness must be hers to command.

The child when born must be guarded and guided along the same channels and from the first day the oral cavity must be cleansed after each feeding. When the teeth come, they must be preserved by proper cleaning and restored when decay begins, that the contour of the jaw be developed and room for the final dentition be abundant. To sterilize the mouth we must thoroughly scrub the gums with a stiff brush and warm soap water, afterward rinsing with normal salt solution and rubbing with sterile gauze for five minutes. Rinsing the mouth with any mild antiseptic solution has little effect upon the bacteria, as the secretions rapidly neutralize the antiseptic. Scrubbing well with a stiff brush is absolutely essential to any attempt at sterilization.

Were such simple and obvious precautions taken with every child they would become a fixed habit throughout life, and we would see a distinct improvement in the condition of the mouth which would be evident in the longer average life.

The people should be taught the importance of prophylaxis- They should all go regularly to a competent dentist at least once in every three months, for the removal of all deposits from the teeth, destruction of pus pockets, extraction or filling of carious teeth, and the correction of all deformities.

1. Hunter, William. British Journal, July 1900. Oral Sepsis.

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3, Cushing, Harvey. Vol. IX, Johns Hopkins' Hospital Reports.

4. Schamberg, M. I. The Journal of the American Medical Association. August 5, 1905. P. 374.

5. Levings, A. H. The Journal af the American Medical Association. August 12, 1905. P. 458.

6. Blake, Edward. Intestinal Catarrhs. P. 103.

7. Fletcher, M. H. The Journal of the American Medical Association. August 5, 1905. P. 376.

8. Curtis, G. Lenox. The Journal of the American Medical Association. August 5, 1905. P. 376,

9- Campbell, E. K. The Medical Record. August 5, 1905. P. 232.

SENIOR PROPHESY.

The second and last day of my visit in heaven dawned bright and clear, not a cloud could be seen to mar the celestial beauty. From a thousand palaces the sound of music—the kind the angels make—floated out into the freshness and fragrance of the morning air.

Dr. Seippel came fluttering down from her apartments ready .for her morning exercise. She asked me if I would like to accompany her, and then immediately saw the foolishness of such a question—I had no wings.

Returning from her fly with the flush and bloom of the exercise on her face, we seated ourselves upon the marbled plazza and awaited our ethereal breakfast. It was wafted us from the kitchen below and we sat there leisurely sniffing and inhaling the savory flavor as it floated by—how I longed for my usual breakfast of "coffee and."

Chatting over the "breakfast table invisible," I asked in a whisper, how Dr. Earle happened to be in heaven. "Havn't you heard all about that," she asked in astonishment, "I thought everyone, even on earth, had heard the story!" It created lots of talk and excitement at the time. Saint Peter was accused of graft and suspended as gatekeeper foı sixty days." Graft, where had I heard that word before? How familiar it sounded and yet how strange to hear the word in heaven.

Breakfast over and with uncomfortable symptoms of bronchiectasis we returned to the room marked '07 and delved into the lives of our class-mates again.

I opened the futuroscope of Dr. R. C. Pynn and the city of Hartland, Wisconsin, was pictured before my eyes. The greatest forces in this world are silent. I saw the doctor as a great nerve specialist standing by the sick bed of one of the fashionable residents of the city. With a quietness and dignity, which was his as a student, he was a physician in the fullest sense of the word. The calm professional bearing invited trust and confidence. Although he belonged to no fraternity (he did not believe in them, nor would he, like his old room mates, break his neck trying to join them) yet he fraternalized with everyone and it was this, with his professional dignity and skill, made him what I saw him, one of the best specialists on nervous diseases, and one of the most respected physicians in the west.

Passing on I took a casual glance again in the futuroscope of Dr. Betty Neilson. Her office in far off India came again in view, yet I noticed the sign had been changed. It now read Drs. Philips and Philips. The huge pet python was gone. It had been supplanted by Dr. Nelson Chancellor Phillips. The smiles and glances which once belonged to the python now no longer was his. I saw the poor fellow preserved in a large jar of alcohol.

I opened a scope at the further end of the room, the state of Indiana came before me, and in one of its principle little cities I saw our good-natured old class-mate, Dr. Robert Lavern Wade, The doctor was everything in the little city, physician, editor and mayor. "On the banks of the Wabash" stood his magnificient home, and it was there he had established one of the largest opsonic laboratories in the United States. He had gathered an efficient corps of physicians and bacteriologists around him in the laboratory, he being too busy to take personal charge. There was Dr. Albert Garfield Koch, of Kansas, in charge of the laboratory, Dr. Herman A. Rickteriuk, of Michigan, and Dr. Holland Todd Ground, of Wisconsin, assistants. The whole world looked to the Wade Laboratory for its Epsonic Index.

The West, with its free life and frank manners came before me. In Nebraska, I saw the offices of Drs. Clark and Lukins. Dr. Lukins was as "Happy" as ever, holding up his end of the practice. Dr. F.B. Clark spent most of his time on his large ranch, which embraced several counties. He was a God among the people of that country, and his high professional skill entitled him to the success and honor which was his. While I was looking into their futureoscope I saw both of the doctors take the train for Chicago, and that evening when I looked again I saw them at the Palmer House in company with the famous eye specialist of London, Dr. Fred Cyphers. The occassion was the annual "old college chum dinner." There was only one thing to be noticed particularly about the banquet. In place of the "sparkling" and absinthe, which the Parmer House knows how to serve so well, three glasses of pure spring water stood on the table.

Among the creoles, "away down in Louisiana," I saw our good natured old class-mate, Dr. Joseph Henry Mitchell located. He was the same old Mitchell. Ready to laugh with you when you wanted to laugh, or if it was a tale of woe, he would listen and sympathize, It was this trait that won him his large practice in the south.

I opened the futuroscope of Dr. Charles Edward Max

Fisher, F. R., M. S., M. D.. our old electrified and distinguished class-mate, "Der Kaiser." He had become one of the most famous obstetricians and biologists in Chicago. His laboratories for research work in biology, and his maternity wards were located in the West Side Hospital which he had purchased. His maternity wards were under the personal observation of his wife, formerly Miss LaMasters, of the West Side Hospital whom the doctor met during his college days. One of the doctor's most able assistants in his biological research work was Dr. Elizabeth Bentele, who had just returned from studying in Berlin.

The office of the "Prince of good fellows" and a physician of no mean ability was pictured as I opened the life scope of Dr. John H. Lebens. The little old Minnesota town looked cold and wintery as I gazed upon it, but I forgot to shiver. An old familiar scene presented itself too strongly to my mind. There was the doctor standing up against the sizzling hot radiator in his office, just like he did in old college days. His office was crowded with patients, but the doctor was letting them wait a little while, he could not break away from habit—he must enjoy one more radiator dream—before he began the day's work.

The metropolitan city of Good Hope came in view. Since Dr. "Cholly" Newton Allison had located there, the city ranked next to Chicago in size, and its population was composed mostly of women. He was one of the most famous "beauty" doctors in the world and women from every country knew it. It was not altogether his skill. as a skin specialist that all the women flocked to him. He was popular outside of that—they just simply could not resist him, that was all there was to it. Those dear little feet and hands, the black soft hair and those dark eyes—Oh! Cholly!

The ideal of all the girls at home, when he left for Chicago the world suddenly grew dark (but why talk about it.) We all remember when he first came to Chicago. How all the society women, headed by Mrs. Potter Palmer and the Armours and the Marshall Fields lined up on Honore street in front of the college and would not leave until he gave them "just one look" And now he was located in Good Hope. His office was a magnificient building about twice as large as the Auditorium, located in the center of the city. Twenty-two railroads ran into the building, unloading thousands of women daily from all parts of the world. Half the number "just come to look," the other half to be treated. All the medical colleges were trying to claim the doctor as their graduate. But the P. and S. had the "cinch" on them all. Dr. "Cholly" Newton Allison had his name on their roll books for four years. Hurrah, the honor was ours.

As I opened the futuroscope of Dr. James Albert Edwards, A. B., M. B., M, D., a section of God's country rolled before my eyes. The great south-west with Dallas as the center. The doctor, after having studied in Europe for a number of years, settled down in this thriving city of Texas, and from the word go he was successful. He did not have to practice medicine for a livelihood; it was the love for the science that prompted him to enter the profession, and it is such physicians that make a success always.

The futuroscope of Dr. Martha Hayward would not come open. I soon discovered the cause. A little sign at the top, which I had overlooked, read, "Taking a bath."

I passed on and opened the "scope" of Dr. Charles M. Hecht. The doctor was located up in Minnesota with Dr. Olaf Adolphus Olson. It was only natural that Dr. Hecht should locate in a Swedish settlement. He was always popular with the Swedish people while a student in Chicago.

Dr. Olson, when he wasn't fishing, could be found in his office. "Ole," you could always have a good laugh with "Ole."

Finding myself near Dr. Rose Zalesky's "scope," I opened it and was greatly surprised. The sign over the office door was changed. It now read Drs. Conroy, Conroy and Conser. So William Henry was now a member of the firm.

The city of Sterling, Ill., a bird's-eye picture flashed before me. There I saw Dr. Lepold Forrester located, and of course, Dr. William Eidam was his partner. The twin physicians; they were always seen together—one and inseperable—like they were in college. No one in Sterling ever heard Dr. Eidam talk, and Dr. Forrester said even less. Their practice was large, and they were known as the best pair of gynecologists in the west. The walls of their office were decorated with original drawings by Dr. Forrester, whom it will be remembered was the class artist.

As I opened the scope of Dr. Frank Godfrey Andreen, I looked upon the little city of Woodhill. Dr. Andreen was one of the University boys, a good fellow in every way, and one of those physicians whom you know on first acquaintance is bound to succeed. He had all the practice of Woodhill and surrounding territory, and as I moved the futuroscope ahead I saw him located at 103 State street, Chicago, one of the best physicians on internal medicine in the city. There is something about the college man that always wins.

LIBRARY NOTES.

The following contributions to various medical journals have been made by members of the faculty of the College of Physicians and Surgeons.

Dr. J. L. Porter. The Treatment of Hip Disease. Surgery, Gynecology and Obstetrics. February; pp. 132–136.

Dr. Wm. E. Gamble. Recent Progress in Surgery of the Conjunctival Sac. Surgery, Gynecology and Obstetrics. February; pp. 161–164.

Dr. Aime Paul Heinick. The Termination and the Treatment of Extrauterine Pregnancy. Surgery, Gynecology and Obstetrics. February; pp. 171–192.

Dr. A. H. Ferguson. Perineal Prostatectomy the Operation of Choice. Illinois Medical Journal. March; pp. 247–253.

Dr. L. Harrison Mettler. Neurological Complications of Exophthalmic Goiter. Illinois Medical Journal. March; pp. 267–271.

Dr. Wm. E. Quine. The Medical Treatment of Exophthalmic Goiter. Illinois Medical Journal. March; pp. 271–273.

Dr. D. N. Eisendrath. The Diagnosis of Traumatic Rupture of the Abdominal Viscera. Illinois Medical Journal. March; pp. 282–289.

Dr. Henry T. Byford. Vaginal Section as an Operation of Choice. Surgery, Gynecology and Obstetrics. March; pp. 262–264.

Dr. Irene Smedley, an alumnus of the College of Physicians and Surgeons, has presented the Quine Library with a collection of books and journals that is of great value in as much as the journals include many volumes of the early medical publications of Chicago. All Chicago medical journals that antidate the great fire are rare, and many of them are unattainable. To the kindness of Dr. Smedley we owe our present collection, which needs but a few volumes to make our files complete. We urge the friends of the Quine Library to remember this fact, and if the opportunity presents, to aid us in securing the volumes that were published before 1855.

The first medical publication issued in the State of Illinois was called the Illinois Medical and Surgical Journal. This magazine was published in Chicago, the first issue appearing in April, 1844. March, 1846, the name was changed to Illinois and Indiana Medical and Surgical Journal, and it was continued as a bi-monthly till April, 1848, when it became the Northwestern Medical and Surgical Journal. This journal flourished till 1857, when Dr. W. H. Byford and Dr. N. S. Davis became the editors and the name was changed to the Chicago Medical Journal. In 1875 this magazine was united with the Medical Examiner, and under this title appeared till 1888 when it ceased to exist.

Dr. Smedley's gift included the following volumes:

Chicago Medical Journal, 1858 to 1861.

Northwestern Medical and Surgical Journal, 1855 to 1857.

Chicago Medical Examiner, 1863 to 1871.

Medical Examiner, 1875.

Besides these Chicago journals there were two volumes of the Peninsular Journal of Medicine published at Ann

Arbor in 1855 and 1848, and about twenty volumes of the Medical and Surgical Reporter, dating back to 1869.

Dr. R. H. Babcock has kindly presented the Quine Library with a copy of his recently published work, entitled Diseases of the Lungs.

Through the kindness of Mr. Fortier, of the class of '07, we have a new picture of Dr. Roswell Park, which has been framed and hangs in the Faculty Reading Room. Mr. Fortier was at one time a pupil of the noted surgeon, Dr. Roswell Park.

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SENIOR NOTES.

The annual epidemic of spring fever is sweeping up the Mississippi Valley. You had better fall in line with Staley and get vaccinated.

O. B. Edmundson paid his bi-monthly visit to the college this month.

What a lot of satisfaction there is in the thought that one loses his job because he "knows too much."

Dr. Alrutz—"Why do we oil the baby?"
Dr. MacKellar—"To get rid of the meconium."

Dr. Williamson presented a rare case to his college clinic; it was a male adult who was a Hollander by occupation.

L. C. Steiner has a new operation for the treatment of torticollis, viz.: resection of the pneumogastric nerve. That would certainly take some "nerve" to do it.

Why is Wassom's head like heaven? It's a bright and shining place and has no parting there.

Pearson says it is a hopeless case; he has tried Borden's best cream, chocolate icing and Gunther's bon bons, and they are absolutely no good, his mustache refuses to show up.

Wolensky has been appointed city disinfector at a salary of $1,000 per annum. He says he is now a member of he Board of Health. No one doubts that when they know that his inseam is 32 and waist band 46 inches.

Dr. Bacon expects to return from his European trip about April 7. In his absence the obstetrical work has been ably conducted by Drs. Simon, Alrutz, Hollenbeck and Bachelle.

The following seniors took the examination for interneship at the County Hospital: Misses Seippel and Nilsson and Messrs. H. J. Smith, G. L. Davenport, L. C. Phillips, G. J. Mautz, E. W. Thurer, H. B. Kingsbury and W. B. Daugherty.

W. H. Conser got so thoroughly warmed up that he boiled over; the boils presenting on the back of his neck; as a result Mr. Conser has been very nicely "done up" in gauze dressings.

Disney has been training himself for the pngilistic ring by unceremoniously butting into his colleagues when they are not aware of his presence.

The result of the examination for internes at St. Ann's Hospital is as follows:

F. J. Wochos, 1st place.
H. E. Jenkins, 2nd place.
Chas. Segal, 3rd place.
W. E. Gunn, alternate.
Earl Nellis, alternate.
P. P. Leicht, alternate.

JUNIOR NOTES.

The Junior class has manifested considerable interest in quiz class work and hospital appointments and they will start work soon. Dr. Eisendrath, who is always doing nice things for us, will enlarge Michael Reese hospital so that we can have more interneships. For this favor many thanks.

James Edward Dolan is constanly demonstrating "Facies Hypocrite" for the benefit of science.

Several of the boys were out "picking lemons in the Garden of Love."

Dick Dowd—"I have gone to my last show." Perhaps you may have another show at the next medicine examination, if it is like the last three were, long and comprehensive.

Nowak met a hard case in the county hospital and it made his hair stand on end.

Noger, the auto crank, and Mikkleson, the machine crank, are still arguing on the good points of various automobiles.

Mr. Gordon was visited by his father on Thursday last. Heaps of joy.

Clark has advanced the theory that sterility is caused by trauma and old age.

Browning did not see the joke, neither did he see the card pinned on his coat. His papa did.

Heard during a quiz. Goldberger: You may have mature cretinism in a child five years old when they commence to walk.

Skwor may elucidate his original theory of the cause of the rupture of the Graffian follicle.

Dr. Phifer—"Mr. Marion, differentiate typhus and small pox during the first three days."

Marion—I don't think I can, but I can differentiate typhoid and small pox.

Tucker was nearly quizzed by Dr. Sherwood, but the latter recognized the former before he had time to answer the question.

Some of the fellows are wearing such red ties that it looks like an epidemic of epistaxis.

For the benefit of those baldheaded members who may not have heard Dr. Pusey's remark, we will repeat it here: "Vaseline will not grow hair anywhere."

Otrich prescriber. Hot air and skim milk.

Joe Lalor, how is Marie?

Samuel. "By palpation you can feel the water in ascites." Does it feel wet?

Sherwood—What would you do in a case of septic peritonitis?

Schuessler—I would wash out the peritoneal cavity.

Sherwood—What fluid would you use?

Schuessler—Green soap and water.

Quis Master—What glands are liable to be involved in a severe vulvitis?

McCormick—In the female?

Dr. Pusey has a lady friend who gave him the following conundrum: Why is a caterpiller like a buckwheat pancake. Because its the grub that makes the butter fly.

Mrs. Parks has a new function for the omentum which she calls the "glycotory function." Perhaps we can prevail on her to give the details in a later issue.

Dr. Earle—"Outline the treatment of laryngitis,"

Conroy—"Get the co-operation of the patient. If he is a speaker who speaks a lot, get him to quit speaking. Send him to the sea shore to take surf baths and send him on a sea voyage.

Comee looked very bad Wednesday and Thursday.

D. E. Samuels looked very bad Wednesday and Thursday.

I shmael—"How time does fly."

D. E. Samuels—"Well, do it now."

Schneider has a new expression. "Make a noise like an angleworm." Some of the fellows had to have it explained that an angleworm did not make very much noise. We think it is a good joke.

FRESHMEN NOTES.

Voigt still stands among the highest of the class [6 ft. 2 in.)

Dr. Rego—Of what is the brachial artery a branch?

Reigheimer—Brachial plexus.

Dr. Rego—What is a plexus?

Reigheimer—A combination of arteries, veins and nerves.

Mrs. Winecoop—Of what is a tendon composed?

McKee—(Schmidt prompting) Cartilage.

Our basket-ball team is one of the units our class is proud of. They have lost but one game this year and have challenged each of the other classes without response.

Boys, be loyal and lend your support by attendance and rooting.

As the class poet is doing research work in England, critics please be fair with the editor.

When he's firing puzzling questions to the bunch,

Or is giving some sleeping chump a hunch,
You can see his sunny smile
Honest, boyish, without guile—
There's no other that's just like our jolly Wentz.

But no matter what a "bang-up" man you are,
If you meddle with drink or a cigar,
If you stay out late
He will drop you sure as fate.
Just remember you can never jolly Wentz.

He is honest, fair, and always just the same,
He could teach a wooden Indian the game.
Every fellow says he's square
You will always find him "there,"
But you'll never find him easy—Jolly Wentz.

W. H. B.

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DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., MARCH 20th, 1907.

PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION.

DENTAL PATHOLOGY.

By George W. Cook, B. S., D. D. S., Chicago, Ill.,

Dean of Dental Department University of Illinois; Professor of Bacteriology and Pathology, University of Illinois; Professor of Oral Surgery, Dearborn Medical College.

Reprint from *The American Dental Journal.*

We have previously spoken of the nutritive function in all living protoplasmia as one of the things influencing both disease and its treatment. It should be remembered that the manifestation of disease as it appears in all forms of life, whether it be in the higher or lower form or whether it be in the animal or vegetable kingdom, is the result of the reaction taking place in living protoplasmia to protect itself from any disturbing influences that may come into the tissues and organs of the body. It should be further remembered that the process to an extent depends upon the the tissues of the body and their power of protection, as upon the virulency of parastic life. It sometimes happens that the virulency of the causation of disease must depend, as has been stated, upon the nutritive function of the low forms of life. The resistance of the tissues in the higher forms of life is subjected to all the influences that go to make up the life process of the cells, tissues and various organs of the body. It is necessary to reckon upon the function of the latter in order that the proper treatment can be applied to assist the tissues and cells to relieve themselves of foreign substance.

All tissue changes that take place in the manifestations of disease is the reactivity of living substance against a foreign foe. So it will be seen that the disease is the manifestation of certain disturbed biological phenomena, which is based upon certain metabolical disturbances of the part in which the cells and tissues no longer perform their function in a normal way. So this we call *pathology*. Thus it will be seen that the term pathology must be subdivided into two larger classes. One is the structural changes, in which it will be observed that the cells and tissues no longer maintain their normal appearance. This is called morbid anatomy, or better, perhaps, morbid histology. The other class is where the function of the part is changed from a normal to an abnormal activity and may be spoken of as morbid physiology. The first division may be subdivided again into general pathology, which refers to the abnormal processes common to the entire organism. The lateral division of this subdivision is called special pathology, which includes certain structural and functional changes taking place within certain special organs.

Another well-recognized phase of pathology is a condition which has for its consideration the causation of disease (etiology). This phase of the subject is divided into predisposing and exciting causes. The predisposing causes are those influences that in any way may lower the physiological activity of an individual in such a way as to be instrumental in bringing about the conditions of the body where it can be affected by various forms of parasitic life. The predisposing factors may be produced by the following influences: bad hygienic surroundings, poor food, bad air, noxious gases, fatigue, extreme temperature, pre-existing diseases, drugs and injuries. The above-named influences are looked upon as some of the main influences in this direction. The exciting causes may be produced by mechanical forces, electricity, poison, parasites, as well as mechanical abnormality; as, for instance, valvular heart lesion.

It may be observed that if some of the factors that enter into the causation of predisposition to disease be severe and long enough, it may be possible for them to become the exciting cause of disease. On the other hand, it may be possible for a person to be affected with two diseases, one acting almost entirely independent of the other; as for instance, the lung tissue may be infected with tubercular bacilli and the person contract pneumonia, or he may suffer from chronic nephritis or intestinal disturbances.

If one were to stop and look around for the most common onset of disease it would be observed that traumatism comes in for a very large and very important field of consideration . Trauma may disturb the function according to the severity, rapidity and duration of its action. For instance if constant pressure is applied to a part it will cause disturbed functional activity and produce through the lack of blood supply to the part atrophy of the tissue, or some other marked structural or functional changes. If the pressure be applied to the tissue in an intermittent form, hyperæmia of the part may take place and result in hypertrophy, which is the opposite of atrophy. These terms will again be referred to under a more appropriate heading.

Under the head of traumatic disturbances, if a sudden force comes against the tissue there may be a disturbance such as to produce the destruction of the continuity of the part, which will be in accordance with the instrument inflicting the wound. If the force in produced by a sharp instrument, laceration would be the result. If the force is in the form of a dull instrument it will produce contusions. In some localities of the body it may result in both a fracture and concussion. In some cases there is a possibility of establishing a phenomena of inflammation.

Under the head of temperature we can have the action of extreme heat and result in what is usually understood as burns. The changes produced under this head is the relaxation of blood vessels, followed by exudation of serum and in some instances followed by blood. The extent and severity of the injury must necessarily depend upon the time of action, as well as the degrees of heat applied. The manifestations of these effects may be classed in pathological terms as hyperæmia of the exposed part, exudation of serum, followed by liquefaction forming vesicles (blisters). If the extent of the injury is somewhat severe the cellular protoplasmia will become coagulated, resulting in the death of the tissue (necrosis). If the heat is severe enough and continued for long enough time there will be a charring of the part. In such cases the tissues may become deeply involved. In cases of burns death may take place immediately, caused by shock, or possibly death may occur from simple exhaustion. If a burn should involve one-third of the surface of the body and the degree of the burn is anything like severe it will invariably prove fatal. If the heat is applied to the body in general its results will be according the severity, whether the burn was produced by the sun, dry air or steam. If the heat is applied in the form of the sun's rays or dry heat the pathological changes will manifest themselves in the form of heat strokes, also called heat exhaustion. When any of these symptoms are produced there will be heart failure, dyspnoea and coma; pulse is full, high temperature, dry skin, difficult breathing, flushed face, followed by unconsciousness and muscular relaxation.

In the case of severe cold being brought in contact with the tissues of the body the symptoms as above described will often be present, according to the severity of the cold. The superficial or deep tissues may become involved with contraction of blood vessels, and a large majority of structural and functional changes, as spoken of above, will manifest themselves in the parts, however, in the superficial the blood vessels may become dilated and paralysis of the walls of the blood vessels may occur, thus increasing the blood in the part, but if the tissues should freeze during the contracted stage of the blood vessels the part will appear quite bleached out.

Electricity may cause pathological changes and destruction of tissue either by heat of by the resistance of the tissue to the passage of the electric current. In the application of the X-ray to the tissue it may produce only a disturbed function in the superficial tissue; if on the skin a form of dermatitis, or if it is a deep burn it will produce the changes as above described. Barometric pressure may cause certain functional disturbances, as in the case of deep sea divers or in mountain climbers, or persons making a balloon ascension. In the latter case, however, the specific gravity of the blood may be increased with increased red blood corpuscles and hæmoglobin.

Certain seasons may have an interesting influence on the causation of disease, as is usually shown by pneumonia and nephritis being more common in winter; malaria and typhoid fever are more prevalent in the spring of the year, while enteric disorders and yellow fever more commonly manifest their processes in summer.

INTOXICATION.—The term intoxication is applied as meaning a poison, meaning that when a chemical substance of a definite chemical characteristic is capable of exerting certain functional or structural changes of an organism when administered in small quantities. It may be possible under certain circumstances for a substance of this nature to be formed within the body under the influence of certain metabolic changes, and if permitted to remain or accumulate in the tissues or cells of the body, their action there will be manifested by certain structural and functional changes. If the physiological mechanism of the tissues, cells or organs of the body may be of such a nature as to prevent the destruction or elimination of such toxic products, their presence there disturbing certain metabolic changes result in various pathological disturbances of the part (thus the term auto-intoxication). Some have substituted the word autointoxication with autochthonous. Victor C. Vaugn has used the term in this connection, autogenous, meaning the disease that originates within the body. However, any of these terms is sufficient to designate the possibilities of certain metabolical products remaining in the body which may result in the form of a poison. Under this head comes faulty elimination, excessive glandular secretions, irregular absorption of certain digestive products, incomplete chemical transformation of nucleins leukomains which are compounds of a chemical basic substance, resembling very closely vegetable alkaloids produced by certain metabolical activities of the organism. It is barely possible that some of these compounds are formed in certain bacterial activities. According to some observers it is believed that leukomains are the result of certain chemical changes taking place in certain cellular nucleins, some coming from keratin and from the muscular tissue.

The nucleinic leukomains are quite numerous, but the one that has proved of the greatest interest to toxologists is adenin ($C_5 H_6 N_5$), followed by the various members of this group in the manner herein set forth, each important as placed here: Hypoxanthin ($C_5 H_4 N_4 O$), xanthin ($C_5 H_4 N_4 O_2$), guanin ($C_5 H_5 N_5 O$), heteroxanthin ($C_5 H_6 N_4 O_2$), and paraxanthin ($C_7 H_8 N_4 O_2$). All of these chemical compounds are closely related in their chemical nature to that of uric acid, and they are frequently alluded to as xanthin, alloxin or purin bases. Some authors allude to them as alloxuric bases. In nuclein derivatives the chemical formula contains some of the cyanogen group, the relations of which are by no means well understood. The leukomains are crystalline or amorphoua characteristics, sparingly soluble in water and quite insoluble in ether. The watery solution, however, is practically neutral in reaction. Their combining power with acids and alkalies is quite feeble. It is by no means a safe speculation to say as to just what relations leukomains bear to the causation of disease. Some are very much inclined to lay considerable stress on them as important factors in certain uric acid diatheses.

To be Continued,

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ALUMNI NOTES.

E. N. Gathercoal '95 has sold his drug store in Wilmette to Albert Ackermann.

Harry A. Clark '88 visited the school recently.

The annual meeting and election of officers of the Alumni Association will be held at the Hamilton Club, on the evening of March 14th. Arrangements will be made for the annual banquet to be tendered to the graduating class the evening of Commencement Day, April 25th.

Mr. Leo Eliel, President of the American Pharmaceutical Association will make an address at the commencement.

SENIOR NOTES.

Quite a number of the boys took the state board examination February 19th and all met with success. Eisele, Yundt and Mendelssohn were registered in full.

The Senior Class will receive their invitations in a few days; the committee in charge have shown good judgment in their selection and the boys are well pleased.

It is reported that the class will go to Detroit to visit Parke, Davis & Co. some time next month. The trip will certainly be a treat. Turn out with your colors, boys, when we go and let them know that old Illinois is one of the best,

Prof. Goodman is expected back this week to take up his work after a long illness. We will welcome him back with cheers.

Prof. Hallberg: "What is the difference between fixed oils and volatile oils"?

Thorpe: "Fixed oils are fixed and volatile oils are volatile."

McNair spent a few days at Mt. Carmel recently visiting with his family.

Some said Howell Johnston was embarrassed in the pharmacy laboratory. How about it Johnston? We never can tell.

The suspense before the last senior examination in chemistry was fearful.

Ellsworth says, the reason he is growing side-burns is that he must look dignified when he graduates.

JUNIOR NOTES.

Among the Juniors who passed the Board examination for registered assistant in February were Earle, Gasen, Kisner, Luckenbach, Swanson, Tomlinson, Tervehn, Tompkins, Patterson and Urban.

The special lecture on "Bees and Beekeeping, by "J. F. Brown, '04, was very interesting. Mr. Brown has had a great deal of experience as an apiarist which he drew on liberally.

Too busy for news this month. Everybody is plugging hard for final examinations, which are only a few weeks off.

Burg has recently called attention to the positive value of Koplik's spots in the diagnosis of measles. These spots which appear on the mucous membrane of the inside of the cheeks have a rose-colored periphery with a bluish-white center. He has not found them in any patient except one who was developing measles. Their diagnostic value lies mainly in their early appearance, nearly two-thirds of their appearances being on the second or third day preceding the eruption of the disease. Some few cases show the spots the day bafore the eruption appears, and they are very rarely observed to develop coincidentally with the eruption. Their absence, however does not exclude measles, as they may not appear during the entire course of the disease.

The diagnostic importance of these spots should always be remembered in instances of delayed eruption, especially when such cases occur during the occurrence of scarlatina.

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COLLEGE OF PHYSICIANS AND SURGEONS
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UNIVERSITY OF ILLINOIS,
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VOL. XIII. BATAVIA, APRIL 20th, 1906. NO 3.

THE ZEITGEIST IN MEDICINE.*

BY BAYARD HOLMES, B. S., M. D.

In the history of the world it is easy to see the movement of the human mind in the form of public opinion and public action like the currents of the sea, and like the tides of the ocean. At one time a whole nation seemed to be moved by a propulsive insanity, a *Wanderlust*, and they trekked to a new country or to a new shrine. Again the sea called and in every gulf and along every coast crept the galleys and bilanders of the adventurers. In a century Europe was suddenly covered with useless and meaningless towers, that afterwards furnish an almost inexhaustible supply of building material for the masonry of another craze. While Athens was a city of thatched hovels and half clothed warriors, a race was born that produced an imperishable art and an almost indestructible architecture. America was discovered in a century, and in another century it was subdued and contracted by an interminable network of iron roads. Pathology grew out of empiric medicine in the Fifties, and in the Eighties antiseptic surgery and bacteriologic pathology swept the remnants of the old empiricism and the old pathology aside and the literature of medicine was rewritten.

Hopeless, indeed, it is to attempt fo turn these ocean currents of the mind, these tides of human activity,—to call a halt in the useless flow of energy in the direction which it unthinkingly takes. Nevertheless, I would, in this sober and selfconscious group of young doctors, beg one moment of serious consideration. The undue attention which the medical curriculum gives laboratory study and microscopic investigation impresses the student with an exagerated notion of the importance of the evidence they afford. The result has been a dangerous neglect of the study of clinical history and a great loss in the wisdom as opposed to the knowledge of the resulting doctor. The patient is, and always will be, more worthy of study than the disease, and his recovery, and not the diagnosis, is his desire and the duty of the doctor. Our medical ancestors knew this. A few of us, hiding behind some protecting buttress to escape the frenzied board of diagnosticians with their armament of microscopes, opthalmoscopes, laryngoscopes, eosophagoscopes, cystoscopes and proctoscopes, still believe it.

Thirty years ago the medical schools of the United States furnished a small percentage of laboratory teaching. The first meddlesome work which I did in the curriculum was to tax my faculty with thousands of dollars for laboratories and equipment, double my faculty with an army of laboratory teachers and add to the burdens of the student a year or two of time. The laboratory method proved a beast which we took into our house and nurtured and fed, and now in its presumption and stupidity it would drive us out. It monopolizes the time of the student. It disparages the study of the history of the patient and all clinical observation; it neglects utterly the medical literature and sends out the young doctor unacquainted with the patient, with disease and with the experience of medicine, and arms him with an impedimenta of prejudice and diagnostic instruments and laboratory paraphenalia and wholly out of sympathy with the profession whose emoluments he would divide and the life of the community upon whom he expects to subsist. All this is exhibited in the proceedings of our medical societies, in the columns of our medical press, and in the bag of instruments of our young medical men so nonchalant of every human interest of their patient.

Far be it from me to disparage microscopy, enteroscopy or even cryoscopy, but the value of the anamnesis and the immeasurable and prepondering reliability of the evidence of the master-sense of touch cannot safely be denied or discounted. I am afraid that you will not understand me. Perhaps you will never know what I mean until misfortune overtakes you or yours and you call upon your ideal physician for help and find him houndlike, searching out with his sharp-nosed instruments the stirrer-up of the disease. utterly regardless of your need of spiritual and physical support. Then you will value less highly his characteristic method and attitude which is plainly marked "made in Germany," and might be marked because it does not fairly represent the best Teutonic product, "for exportation only." Then you will begin to see the truth of the hippocratic adage, "It is the duty of the doctor to cure the patient."

Let me urge you to be less of a laboratory man than a diagnostician, less of a diagnostician than a doctor and less of a doctor than a fellow man.

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*From an address before the Alpha Omega Alpha Society of the College of Physicians and Surgeons, March 2, 1907.

ALPHA OMEGA ALPHA.

The annual initiation and reception of the Alpha Omega Alpha was held at the Vogelsang Cafe, Saturday evening, March 2nd, 1907. Of those in attendance twenty-two were active members, and the remainder alumni and faculty members. Dr. Quine, as toast-master presided throughout the evening, and led the company in a lively conversation and an amusing contest of story telling and repartee.

After dinner was served the initiation exercises were conducted by the president, admitting twelve new members to the fraternity, of whom seven were seniors, making a total of seventeen, and five juniors. The latter constitute the nucleus of the honorary fraternity for 1908.

Following the initiation came a short program of toasts led by Dr. Quine and responded to by members of the faculty and students. Dr. Bayard Holmes gave an account of the development of the science of bacteriology which was the more interesting in view of the fact that the speaker was the first to equip a laboratory for bacteriological research in the west. Other faculty members who responded were: Dr. Chas. Davison, Dr. Santee, Dr. Fantus and Dr. Frederick Harris.

TRYPSIN IN CANCER—A PRELIMINARY STATEMENT.

By William Seaman Bainbridge, M. S., M. D., N. Y.
Surgeon New York Skin and Cancer Hospital: Secretary International Conference for Cancer, Heidelberg.

Huxley has aptly said, "The man of science has learned to believe in justification, not by faith, but by verification." Until such time as verification is complete, the scientific attitude must ever be that of "suspended judgment." "Prove all things; hold fast that which is good," is the tentative watchword of every seeker after truth in whatsoever department of human endeavor he may be laboring. Over-enthusiasm and premature conclusions have always been a menace to scientific investigation, bringing in their wake as much harm, at times, as wilful misrepresentation; the pitiable part of it all being that it reacts upon the unfortunate ones whose sufferings it is our earnest aim to prevent or to alleviate.

The world today is watching, with keener interest than ever before, the warfare that is being waged against malignant disease. Thousands of cancer victims are listening with bated breath for the slightest word of hope of amelioration or cure by other means than surgery. How many times in the past, alas, have they been disappointed—the new agent apparently so full of hope has proved a mirage! Despite these many disappointments each new remedy which seems to offer reasonable hope of benefit, without doing harm, should, in suitable inoperable cases, be tried by those who are competent in this field of research. Whatever laboratory experimentation may be necessary in the development of a given method of treatment, in its last analysis the new remedy must be applied to the human being for the final test of its efficacy. In the treatment of cancer ample opportunity is afforded for such test with cases which are no longer amenable to surgical interference, but it should always be borne in mind that between the starting point, "no evidence," and the hoped for goal, "a cure," there may be many way stations of usefulness.

For some months the pancreatic enzymes in the treatment of cancer have engaged the attention of the medical press, and both here and abroad systematic efforts are being made to determine whether the so-called trypsin treatment shall rest at the initial stage of the journey, be advanced to some one of the way stations, or be carried in triumph to the final, oft promised land of cure. Dr. Beard, the originator of the method, has made it plain that it is his great desire to have his treatment thoroughly tested along the exact lines which he himself has laid down, and that he is willing to abide by the consequences.

From May to September, 1006, I employed trypsin in a few cases according to the plan reported in the medical journals. The results were unsatisfactory. Further knowledge on the subject has shown me that in my first efforts I omitted many of the essential details, and that the treatment was not applied in strict accordance with the theory upon which it is based. However, after visiting Dr. Beard in September, 1906, and making myself thoroughly conversant with all the details of the method, I determined to begin *de novo* and to give the treatment a scientific trial, which would determine absolutely whether it was to be thrown into the junk heap of cast off "cancer cures" along with Doyen's serum, Schmidt's serum, Morton's "liquid sunshine," and the rest, or be elevated to a place of distinct usefulness.

Needless it is to say that a few months' trial in a limited number of selected cases cannot suffice to forever settle the merits of any method of treatment for cancer, with its ever dangling sword of Damocles, *metastasis*, to shadow our hopes of ultimate cure. In justice to the earnest, truth-seeking element of the profession both here and abroad, in justice to cancer sufferers the world over, in justice to Dr. Beard, and lastly to myself, I find it necessary to write as I do now, in advance of further definite information. To remain silent longer would tacitly give assent on my part to much that is misleading. My name has been mentioned repeatedly and without my will, in the lay press as well as in medical journals on both sides of the Atlantic, in connection with a reported case stated to be "a remarkable one clinically on account of the decisive action of trypsin upon the cancer, and pathologically on account of the opportunity which the operation [performed by me] presented of making a microscopical examination of the actual changes produced by trypsin in cancerous tissue."

The case referred to is No. I in Dr. Morton's article, "Trypsin for the Cure of Cancer," published in the *Medical Record*, Dec. 8, 1906, of which he says: "a most remarkable atrophy of an entire cancerous breast ensued," and in his summary, "a remarkable process of retrogression by degeneration and atrophy of a carcinomatous breast gland to final and curative obliteration has been microscopically demonstrated."

Dr. Morton's report, which was published in advance of a thorough study of the entire tumor mass, and against my most emphatic advice, was immediately commented upon widely by the secular press, and a marvelous new "cancer cure" was heralded to the world. Dr. Saleeby, a well known writer on medical and scientific subjects, became over enthusiastic in his articles in the *Pall Mall Gazette* of Dec. 10, 1906, and in *Harper's Weekly* of Jan. 10, 1907. In the latter paper Dr. Saleeby says: "The first case of Professor Morton's is the most valuable because of the completeness of the demonstration. In no other case in America has it been possible to examine, under the microscope, the results of the treatment of tumor by trypsin." All this is most unfortunate, since the facts, at least as they pertain to case I (upon which greatest importance seems to be laid by Dr. Morton and those who have commented upon his report), do not warrant the slightest enthusiasm as regards cure.

While this case is full of disappointment, it presents certain features which give sufficient ground for further careful trial of the pancreatic treatment. Many other cases now under treatment at the New York Skin and Cancer Hospital and elsewhere encourage us to go forward in the hope that a valuable agency may be within our reach.

Let it be understood that the present communication is in no respect a report on trypsin. The writer, as has been stated, has been giving the treatment a trial since October, 1906, by means of the enzymes, trypsin, and amylopsin, with the adjuvant remedies and the dietetic and hygienic regulations advised by Dr. Beard, but it will be many months before the detailed reports of these experiments will be published in full. In the meantime I wish to give the facts in the case mentioned in order to warn against premature conclusions, and the arousing thereby of false hopes in the minds of cancer victims.

Summary of History.—The patient, K. H., first noticed a lump the size of a small marble in the outer quadrant of the left breast in October, 1903. I saw her at this time in consultation with Dr. E. W. Peet, of New York, to whom I am indebted for careful notes on the subsequent history of the case. Indistinct history of cancer on both sides of the family; the sister died of multiple sarcomata. Operation was advised, but refused. The growth which measured one and one-half inches by three-quarters of an inch, increased slightly in size, until removed by Dr. Peet in June, 1904 (operation No. 1). Radical operation was positively refused. The wound healed by primary union and convalescence was uneventful. The diagnosis of beginning carcinoma was verified by the independent microscopical examination of the tumor by two reputable pathologists.

In the late spring of 1905 a secondary growth appeared in the breast, to the inner side of the site of the first. By the end of June enlarged axilliary glands could be made out. Radical operation was again advised and absolutely refused. The patient subsequently consulted Dr. Morton, who, according to his report of the case, gave her thirty-two x-ray treatments. Eight months later she again consulted him, at which time he instituted the trypsin treatment, beginning with five minims and increasing to ten minims, the injections being given three times a week. (See Dr. Morton's article to which reference has been made).

On Oct. 9, 1906, the patient consulted me with reference to operation. Condition at this time was as follows: Typical large scirrhous carcinoma of the left breast, with considerable ulceration around the nipple, enlargement of the lymph nodes well up in the axilla, a certain amount of contraction of the skin, and in spots secondary skin deposits for a short distance around the main mass.

From October 9 to November 3, 1906, there had been a distinct increase in the ulceration and in the axiliary involvement. The patient complained of increased pain. No treatment was given during this interval.

With the full concurrence of the physicians with whom K. H. had been in professional relations, and with a perfect understanding on the part of the patient and family of the gravity of the case, I operated upon her, November 3, 1905, assisted by Dr. Peet.

Operation II.—The entire breast, with the skin, was excised down to the posterior axillary line, with the removal of both pectoral muscles and the entire lymphatic and connective tissue contents of the axilla, into Mohrenheim's space, as high as could be reached. Even the periosteum covering the ribs directly under the seat of the most marked ulceration was removed. The diseased structures were exsected from the middle line of the chest to the posterior axilliary line. Skin flaps from the right and left half of the abdomen and the left side of the back were brought over the denuded surface, which was completely covered, with the exception of a space about two inches square in the centre.

The sutured wounds united by primary union and the uncovered area gradually healed by granulation.

Shortly after the operation nodules of lymphatic metastasis appeared in the neck posterior to the sterno-cleidomastoid muscle, and a number of small nodules developed in the skin at the upper part of the wound. This proved conclusively that the malignant process was still active, and that the trypsin treatment given by Dr. Morton was inadequate to stop its progress. Realizing this, I commenced the treatment with much larger injections than he had used, and of a double strength solution of the preparation of trypsin which Dr. Beard declares is the best.[1] Whether it was coincidental or not, it is interesting to note that no new nodules were observed from the time the patient received full dosage of trypsin to the time of my second operation. nor did those already present materillly increase in size.

On November 27th (the twenty-fourth day after the radical operation), the local, dietic, and hygienic regulations recommended by Dr. Beard were instituted. On November 28th daily injections of trypsin were begun. Fifteen minums of the double strength were injected into the deeper subcutaneous tissues over the buttocks. This dosage was increased to twenty minims and kept at that limit, with the exception of one injection of twenty-five minims. On December 24th (the twenty-eighth day of trypsin treatment), injections of amylopsin (twenty minims) were begun. For the next twenty-eight days trypsin and amylopsin were injected alternately.

Operation III.—On January 22, 1907, assisted by Dr. E. W. Peet and Dr. E. M. Foote, I removed the enlarged nodules and secondary deposits in the skin, to which I have referred. These were immediately placed in jars, which were sealed and sent by special messenger to different pathologists of standing, some of whom were told that x-ray and trypsin had been used, while to others was given no such information. Their reports are appended.

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[1] The preparation used by Fairchild Bros. & Foster.

The wounds healed promptly by primary union. The trypsin treatment was temporarily suspended on account of this operation, but has been resumed with certain modifications.

Before giving the pathological reports concerning the tumor mass and the metastatic growths subsequently removed, I think it but just to say a word concerning the report given to Dr. Morton by Dr. Brooks, pathologist to the New York Post-Graduate Medical School and Hospital. Dr. Morton, who was present at the operation of November 3, 1906, asked the privilege of taking a small section of the tumor mass for study. This courtesy was granted, and he himself cut from the tumor a piece from near the nipple. This, it would appear, was given to Dr. Brooks for microscopical study, and upon his report, and upon this alone, Dr. Morton and others have based their conclusions as to the value of trypsin "for the cure of cancer" in this case. So sanguine did Dr. Morton seem to be that he sent microscopical sections from the case to Europe for confirmation of his assertions (according to Dr. Saleeby, *Harper's Weekly*, January 19, 1907).

Attaching so much importance to the microscopical findings from so small a section taken from the center of the tumor is manifestly unfair to Dr. Brooks, for, as we all know, the entire periphery of a tumor should be studied when it is wished to determine whether the malignant process is still active. The opening sentence of Dr. Broods' report says that by far the greater portion of the specimen was composed of extremely dense fibrous connective tissue, "strongly resembling the fibrous connective tissue change noted in breast tumors subjected to x-ray." This connective tissue, he continues, encroached upon the carcinomatous (epitheliat elements, which were scantily present and which were undergoing necrosis. "The great density of the tissue throughout and the decided degenerative changes in the epithelial cells gave the impression," says Dr. Brooks, "that atrophy of the carinoma elements had occurred and been followed by great contraction and condensation of the fibrous connective tissue stroma." This change, as is well known, and as Dr. Brooks himself suggests, is not at all incompatible with what occurs in scirrhous cancer which has been subjected to x-ray treatment. Inasmuch as the section which he examined was but a fragment of the tumor, and the findings nothing more than could be accounted for by the use of the x-ray, and since the portion examined was not taken from the periphery of the tumor, where proliferation of the malignant process should certainly be looked for, the report carries absolutely none of the weight which Dr. Morton and others have read into it. Dr. Morton says further: "Dr. Brooks assures me that had the process outlined in his report continued, the result would have been such marked condensation of the fibrous connective tisse as to have made it very difficult to determine the carcinomatous nature of the growth." The fact that this "process" did not continue, as will be shown hereafter, still further nullifies such hasty pathological conclusions. Dr. Morton, however, with clairvoyant vision, gives a further "reading" in these words: "In fact, the tumor at the time of operation was progressing to a point where its pathological nature would be considered simply as scar tissue. The finality of this process would have been a carcinomatous breast (involving inclusively its skin envelope) which had entirely disappeared—which had become, in short, *absolutely cured*" (the italics are my own).

The pathological reports which follow are quoted verbatim and in full:

REPORTS ON TUMOR MASS REMOVED NOVEMBER 3, 1906.

I.—Dr. F. B. Mallory, associate professor of pathology, Harvard Medical School: "Your sections show a typical rather rapidly growing carcinoma of the breast. It contains a good deal of fibrous tissue, that is, it is of the scirrhous type, but occasional mitotic figures are present. The deeper parts where the tumor is invading muscle and fat tissue show nothing unusual. In other parts of the tumor, however, nearer the skin surface, there are (a) extensive areas of necrosis involving tumor cells and stroma; (b) areas where the stroma of connective tissue is very abundant and the tumor cells very few in number; (c) rather extensive areas in which the tumor cells present marked evidence of degeneration. The epithelial cells are large and have large, round, oval, or often lobulated nuclei. Still other cells are frequently found in which many nuclei are present formed by direct division. This process is analogous to that which occurs in the epithelial cells lining the parynx, in the early stages of diptheria, also in the skin after repeated freezings. These three degenerative processes would indicate some destructive process, but whether they are due to the x-rays, or to trypsin, I am unable to say. I should favor the former."

II.—Dr. F. S. Mandlebaum, pathologist to Mount Sinai Hospital: "I have made sections from four different parts of the breast tumor that you sent me. In each of these I find fibrocarcinoma present. There are a good many places where the tumor cells are degenerated and stain very poorly, and it is natural to assume that in such places the process is quiescent, probably due to the various methods of treatment that have been employed. But in other situations, notably at the periphery, many nests of carcinoma cells are seen growing quite actively and infiltrating between the muscle fibres. In such situations quite a number of mitotic cells are seen, showing beyond question that the tumor growth is still active. The tumor cells in these places show no degenerative changes, and stain in the usual manner."

Dr. Martha Wolstein, pathologist to the New York Skin and Cancer Hospital and fellow of the Rockefeller Institute, says: "The specimen as a whole takes the stains badly, and this prevents a positive opinion as to the condition of the individual cells. Many of the cells are in good condition, however, especially at the periphery, where columns of them are extending into the lymph spaces. There is marked inflammatory reaction in some places; in others the alveolar contents have disappeared, but whether this occurred before or after removal of the breast cannot be determined. The stroma is quite dense in some places, but on the whole it has the typical appearance of a scirrhous carcinoma."

REPORTS ON METASTATIC GROWTHS REMOVED JANUARY 22, 1907.

I.—Dr. James Ewing, professor of pathology, Cornell University Medical College: "Material received consisted of one piece of skin and a nodule 2 x I x I cm., apparently of subcutaneous tissue. Both specimens contain a diffuse growth of highly malignant tubular carcinoma. The large nodule consists of fat tissue, connective tissue, and one small lymph nodule, all of which are thickly infiltrated by the tumor. In the lymph nodule the carcinomatous growth is diffuse and little of the node remains. The pericapsular lymphatics and several large veins are plugged by solid masses of tumor cells. A considerable increase of fibrous connective tissue accompanies the tumor process. In the skin there are several minute and one larger metastatic nodule, and in some foci only a few isolated tumor cells first appear in small isolated groups which increase in size, until, as in the largest nodules, the chords are of considerable thickness, or the growth is almost diffuse. In all portions examined the cells retain the characters of large polygonal epithelia. The characters of the cells, their arrangement, invasion of bloodvessels, and numerous mitotic figures, indicate active growth and a high grade of malignancy. A moderate degree of hydropic and fatty degeneration is present in many of the cells of the cutaneous nodules, but in the main subcutaneous tumor and in the lymph node, degenerative changes are very slight or entirely missing. Mitotic figures are abundant in all parts of the tumor. In this case, therefore, there is no indication that the trysin treatment has exerted any definite influence on the tumor cells. The degenerative changes seen in some portions are often present in carcinomata."

II.—Dr. Wollstein: "Skin.—Epidermis normal. In the subcutaneous tissue there are some smaller and larger columns of epithelial cells which have penetrated the lymph spaces, and evidently show spreading of the carcinomatous process from below. *Lymph nodes* show marked metastases of carcinoma. Only a small amount of adenoid tissue remains."

III.—Dr. Mandlebaum reports upon the metastatic growth as follows: "I have examined the two specimens. The one, supposed to be a gland from the neck, does not show any glandular tissue, but it is entirely infiltrated by carcinoma cells, which are active and do not show any degenerative changes whatever. I look upon this as a metastatic nodule in the superficial muscles. The other specimen shows carcinoma cells, rapidly growing, in the upper layers of the corium and also extending downwards into the deeper layers of the skin and subcutaneous fat. These cells, likewise show no evidence of degeneration."

IV.—Dr. F. M. Jeffries, director of the pathological laboratory of the New York Polyclinic Medical School: "To begin with, cancer invades all the tissues received—the skin from cicatrix of previous operation and the tissue from present operation. It is of the carcinoma molle type, and, by the abundant karyokinesis, appears to be in a very active state. In fact, it exhibits most extreme malignant characteristics, even the extreme of invading the arteries and veins where emboli appear to have lodged; and in two such instances I find in my sections that these emboli have penetrated the endothelium and dissected the muscular coats of the vessels.

"I am wholly unable to appreciate any effects which might be attributed to the treatments to which you say the growth has been submitted, except in the more superficial alveoli of the portion of the skin from old scar, where I recognize the effect of the x-ray treatment in a contraction of the alveoli, together with a general atrophic condition, affecting all superficial structures save epidermis, which appears to be entirely normal. The groups of cancer cells in this locality appear to have become markedly shrunken, they fail to react properly to the nuclear and protoplasmic stains and there is consequently very little differentiation. It exhibits practically no karyokinesis."

The foregoing history, embracing the pathological reports, will, I believe, convince all who may be interested, that in the study of cancer, more, perhaps, than in any other field of research today, is there need for "suspended judgment," for "the cultivation of that enthusiasm for truth that fanaticism of veracity," which should be brought to bear on all questions involving human life.

Whether we accept or reject the theory upon which it is based, let the "trypsin treatment" receive the scientific test; while it is being tested, let there be suspended judgment. When the evidence is correlated and the final verdict rendered, if favorable, let it be accepted; if adverse, then on to the next!

⁂ March 7th. Since writing the above, the disease has markedly progressed. Additional metastasis have appeared in the following places: Left side of neck; near the old scar a few nodules; in the skin over the sternum; in the right breast, and in the right axilla. Signs of intrathoracic malignant disease have appeared within the last few days.

SENIOR PROPHECY.

Noon time in heaven. All the angels and arch angels and saints were enjoying a siesta. Everything was hushed. Tired from looking into futuroscope after futuroscope; tired of the monotonous beauty all around me; tired of my guide's inceasant talk; I quietly withdrew to one of the corners of the room where found a couch, and reclining upon it, lighted one of the excellent cigars Saint Peter handed me when I entered. Tell me what is more pleasurable than the soothing effects of a good cigar. The wreaths of blue curling smoke cleared away all to soon—the ashes of my hour's solid life lay in a tray by my side. Above me on the wall, so I merely had to reach up and press the magic button, and I could look directly into the future life of one of the best classmates I knew, Dr. John Taggart Lemmel. I saw him now as I used to see him at college, a tall, slender rosy faced fellow, always full of fun, yet at times the face which was often laughing would settle down into a seriousness, which showed only too well that the doctor realized what the life of a physician really meant,—that of sacrifice and responsibility, and not one continuous round of fun and frivalous pleasure.

The doctor was located in the wilds of Wisconsin, and his large experience with women had fitted him so that now I saw him one of the best gynecological in that far north land.

Getting up from the couch where I lay, I accidentally knocked over the tray of cigar ashes and they were scattered all over the diamond floor. Dr. Seipple was over there in a minute, sweeping them up with one of her wings, and the expression on her face, and the look she gave me, I will never forget.

The "scope" of Dr. George Burt Bissel (the "kidder" as Dr. Gahl always called him) was already open, and I saw Dr. Bissel as I expected to see him, head of the chair of obstetrics in his old Alma Mater. And it was no more than regret' Dr. Bissel, knew obstetrics. He was a man of few words and always meant business. The Bissel clinic in the Ghetto had far overshadowed the clinic of Dr, Lee's. It was located where Dr. R. Yarroski's clinic once was.

The next life I looked into was that of Dr. Fred Robert Disney, of Minnessota. I saw the doctor toiling away in one of the far off missionary fields of India. It was only nature that the doctor should become a medicine missionary. As a student he had convictions, and he was always earnest in those convictions. He was never afraid to stand up for the right,—something few medicine students do.

At eve time, after a hard day's work, I saw the doctor wend his way over to the home of Dr. Phillips and wife, and there spent the evening talking over old college days. And then, as it grew late, and the doctor prepared to leave, there was a quiver in his voice and his hand trembled as he shook hands and said "Good-Night" with Dr. Betty Phillips.

"Of all sad words of tongue or pen, the saddest are these, "It might have been."

The life luster of Dr. Jean Ettelson, our old classmate from the Pacific coast, come next before my eyes. I saw the doctor, a famous alienist in Chicago. We all remember when he first came before the public in the noted McDonald case. The Doctor's knowedge of brainstorms in that case was marvelous, and from that moment his reputation was made.

In the city beautiful, the city of white streets and whiter building, the office of Dr. Martha Hayward was located. Denver had come to know Dr. Hayward as one of her most popular physicians.

From the mining camps came the wealthy miners; from the white mansion, in the fashionable residence part of the city came the other minors;from the city and country throughout they came, and the doctor was popular and prescribed for them all. Dr. Hayward was one of the greatest heart specialists in the nest.

As I opened the little machine, which revealed to me the life of Dr. Max Meyerovitz, I saw the doctor standing upon one of the piers of New York City, watching and watching, for his ship to come in. It was June 6th, two days after graduation, and the doctor was waiting for his little German girl, who was coming, after waiting for him so many years.

The doctor had a cozy cottage in Chicago prepared and his office was already furnished and everything looked bright.

As I opened the futuroscope of Dr. Henry Hulse Seibert, I was met with the fragrance of a good old Havana cigar, which the doctor always is smoking, and by the way which never goes out. Dr. Seibert, who had formed a partnership with the noted psychiatrist Dr. Bruce King, was located in Chicago, and the immence practice that they had hardly gave them time to prepare their lectures to the classes in neurology and psychitry in their old Alma Mater.

As I opened the scope of Dr. Frank Josephine Wachos, intense darkness met my gaze. Absolute blankness—nothing more. I called for an X-ray, and after much trouble I was able to make out that I was looking into darkest Africa, and faintly through the blackened mist I recognized the doctor and his wife, travelling physicians and agents for Truax, Greene & Co. The doctor's wife I could see was no other than Lizzie, who used to frequent the clinics in Cook County Hospital during the senior year.

The natives seemed very well pleased with Truax, Greene & Co.'s instruments, and they all purchased freely and wore them around as trinkets.

As I stood watching, I saw a band of cannibals swoop down upon the village and capture the doctor and his wife, and my blood grew cold when I thought of their probable fate. I watched breathlessly. Soon the "sampler" of the cannibals came forward with knife and cut off a little piece of the doctor's nose. Immediately he let out a yell and spat upon the ground. Then he tried a little piece of the doctor's wife and the agonizing look which came over his face was enough for the rest of the cannibals. They all turned and fled to the hills.

The scope of Pitt Stevens Wilson, of Michigan, as it came open, the clearest, happiest whistle burst into the room, you ever heard. The doctor was physician for a large lumber camp in the Northwest, and he was as plump and as happy as a lark. The free open air life, the camp food and the dollars that was rolling into his pockets were working wonders with the doctor, and he deserved every bit of his success. As I stood gazing Dr. Seippel came up and brushed me aside and looked earnestly and longing into the futuroscope, and finally I heard her mutter, "Oh, Pitt, if I wasn't an angel and I could only come to you." Then noticing that I probably heard what she had said she blushed and quickly disappeared.

Dr. George Wassom, of Illinois, followed the futuroscope of Dr. Wilson. I saw Dr. Wassom located at 103 State street, in Chicago, in partnership with Dr. Wilbur Roads, of Ohio. Both these doctors had executive ability combined with their skill as physicians (a rare combination) which helded to a large extent to make them successful. On internal medicine they were considered as good as there were in the city. Through their business ability they soon accumulated a fortune, and their bachelor homes located on Sheridan Drive were the finest in the west..

I saw our always agreeable classmrte, Dr. Earl Bowen Jewell, head of Dunning Institution for the Insane. Dr. Jewell was considered, with the one exception of Dr. Ettelson, the best expert on insanity in the state. Brain storms, Dementia Americana and Dementia Gerhardt; he could recognize them all at a glance. All these three forms of insanity came from New York and were distinct types of that state.

The life scope of Dr. Charles Alfred Schwartz, as I opened it I saw the doctor preparing to baloon to Wisconsin to hold a consultation with Dr. Lemmel. (The reader must remember this was in the year 1921 and people travelled very frequently in baloons.) The two doctors often held consultations together, even when they were students, and it was only natural they should continue. The consultations were always weighty and full of argument pro and con, and the terms used would keep one guessing who was not well versed in medical literature. Dr. Schwartz'r office was in his home ward in Chicago, and as a political physician he was eminently successful.

The absolutely silent Dr. Thomas Jevne Henneberry, (do you know even his futuroscope opened without the slightest sound), I saw practicing in Aurora, one of the greatest little burgs in Illinois. The peaceful citizens of Aurora liked the doctor from the first. and before a month had gone by Dr. Henneberry was practically the only physician doing any business in the city. What is there about these people who are always seen and never heard, that you like and what is it that makes you feel they are your friend yet they never even speak to you. Dr. John Edward Clark is another such type of a physician, although there is the quiet smile about Dr. Clark, which means that he can be a pretty lively boy at times. As I opened the futuroscope of Dr Clark I saw him as one of the assistants in the Wade Opsonic Laborrtories in Indiana. He was merely familiarizing himself with the work before he accepted the position.

as head of the Wright Opsonic Hospital and laboratory of London.

In South Bend, Indiana, I saw Dr. Earl P. Wagner located. The doctor and his young wife were welcomed from the beginning, and they made freinds everywhere they went. The doctor's practice was more than he could handle, and as I watched him at his desk I saw him writing a letter to Drs. Bundy and Bundy, of Kankakee, asking them if they did not want to come and form a partnership.

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SENIOR NOTES.

You had better begin to gather in those loose ends; they may be useful in a few weeks.

Mrs. Allen—“This finishes your work in the dispensary, Mr. Friedman.”

Mr. F.—“Vell, now vere do I go?”

Mrs. Allen—“You are to put in ten hours in the boiler room?”

Mr. F.—Ish dot so, vere ish dot blace?”

Quiz Master—"Mr. Ameen, describe the second stage of this disease."

Mr. Ameen--"The symptoms of the previous stage are very much exaggerated, coma intervenes and death ends the picture."

Wolinsky is a full-fledged member of the "lemon club." Upon calling at the City Hall for his monthly salary, he was politely informed that twenty per cent. had been deducted for campaign purposes.

Miss Crofut is advocating the creation of the office of Class Patriarch, and has signified her willingness to serve in that capacity.

Dr. Patton was quizzing an intelligent group of seniors, when some one accidentally stepped on a match, which cracked like a young cannon. The doctor quietly remarked in his droll way, that the answers were not brilliant enough to call for any celebrating.

As the time of year for class elections is approaching, and as we are through with them, the Juniors might be interested in knowing that there are several good nominating speeches tucked away in the trunks (physical) of Phillips, Wassom, Fischer, Holm and Jewell. If they can not supply the demand, the editor might scratch around and dig up something, that would do in case of emergency.

Theiss attended a private confinement case a short time ago, and, like other busy practitioners, decided to expel the placenta. He was doing the Crede with considerable enthusiasm, when, much to his surprise, youngster number two appeared on the scene and asked for admission into this world of sighs. The doctor, being very tender hearted, allowed him to enter without a ticket.

The class prophecy which closed in the last issue has been earnestly read, and has provoked much favorable comment from the members of the class. Mr. Mayos is to be congratulated on the production. Of course, it is not likely that it will all come to pass, but if even a half or a quarter of it does, the class of '07 will do honor to its Alma Mater.

Hurrah for the P. & S. and the class of '07. We landed the largest per cent. (66⅔) in Cook County Hospital of any institution represented. Out of nine applicants, six were successful. Names and order of standing: Betty Nilsson, H. J. Smith, W. B. Dougherty, Clara B. Seipple, H. B. Kingsbury and L. C. Phillips.

JUNIOR NOTES.

Jacob Lunn got geography and obstetrics somewhat mixed when he undertook to describe a "straight" as a narrow strip of water connecting two larger bodies of water.

Parrish has a new term whose meaning is not quite plain. Gould does not mention "Pathnonic" in his dictionary.

Oscar Ishmæl got a medal for something—perhaps five cents. It certainly is not worth much more.

"If I had gotten a hurry-up slip in medicine I would have cut out going to card parties."—Skwor.

Reese says, dampature is a combination of dampness and moisture. The Juniors are coining some new and expressive phrases, but anyone may use them.

We are endeavoring to get an article by Moran, on his theory of hysteria in the negro. It will be interesting to hear how he has arrived at the conclusions he presented to the neurology class, where they created no small amount of excitement.

Heard in the Junior class: "Gurgle with three per per cent. zinc oxide solution for chronic laryngitis." Sounds like jungle talk.

Mikkelson has a new theory on deflected septi of the nose concerning the eteology. It is too long to appear here, but he will doutless be pleased to explain it to any member of the class.

Class elections are here now and we hope you will not sell your vote for a cigar or a drink. Wait till later, and perhaps get twice as much.

The assistant editor says the class is so dead this month that he has nothing to contribute to the department. His rambles after school hours would be interesting, but he will not divulge them.

Several mustaches have been started, but for purely personal reasons we prefer not to comment on the fathers of them.

Joyce—"A healthy woman impregnated with syphilis, ..." The rest was lost in the confusion, and even the quiz master laughed.

Goldberger tells us that the fever is accelerated in pleurisy, and another Junior says, under Pathology "the heart beat is increased in typhoid."

Norris has a reputation in obstetrics for not cribbing. Such an honor in such a subject is enviable.

McCabe called up the dog pound and asked for Miss Barker. That lady had just given her last bark, so our worthy president was too late to save the lady's life. This was on April 1st.

SOPHOMORE NOTES.

"ELEGY WRITTEN IN A DISSECTING ROOM."

The walls are bare, the air is cold and bleak;
  The tainted odor of the flesh comes to my nose.
I rest my labors and attempt to seek
  Some reason why the dead here seek repose.

Did opportunity unheeded knock
  Or pass as softly as a summer's dream;
Did this cruel end, the hopes of some one block,
  Whose hand the golden harvest soon would glean?

Did nature rob this man of all his power,
  To cope successfully with brother man;
Or did the circumstances round him tower,
  And on his efforts ever place a ban?

Some unrewarded intellectual giant
  Whose fame perchance would echo round the world?
Had he but lived to press his views defiant
  And brave the shots the many critics hurled.

The arms that nurtured each when in his youth,
  The crooning song some mother sweetly sung,
And then the tales of honesty and truth
  For his welfare by some dear guiding tongue.

Or, did the shield prove false, the lambkin strayed,
  A pit, a snare, or else a siren song?
An idle mind an idle period played,
  And then unto his fate he passed along.

While yet the primitive of you was new,
  Was there a thing against you such as fate;
That ever tightened round you as you grew,
  To drag you down at last unto this state?

A goodly battle fought—and fought in vain?
  Defeat at times is something all must own,
Small links combined soon form misfortunes chain;
  Sometimes we do not reap as we have sown.

Ah ! be it as it is, no text will tell.
  Life's spark is out and here the end must be;
All that you now possess must be a well
  Of information in anatomy.

L. H. Miller, '09.

The partial results upon one paper of a sectional written quiz in pathology:

ENTERITIS:

Def.—Inflammation of intestine.

Cause—Croton oil or other things which are very nasty and disagreeable to the delicate structure of the guts.

Forms:

Acute—Very bad, ties people into knots. Should always be avoided and never let into the house.

Catarrhal—Leucocytosis, exudative pus which causes nasty feces.

Complications—Osteomylitis of the uterus. Chigrawnter of the rectum.

The mortality among the dogs and rabbits of the Therapeutic labratory has fallen since Mensing, Post and Tiffin have completed that line of work.

Professor Irish—What part of the brain does alcohol affect?

Burke—The motor end plates of the medulla.

FRESHMEN NOTES.

Who stole the Xylol?

What the Freshmen will be doing this summer:

De La Paz, Charbonneau, Vitello, Bentzien, P. M. and A. A. Le Bean, Geo. Stubenranch, Epstine, Wilson, Reyes, Kara, Donnehu, Sword, Meany, Ryan and To Lentino will take the summer course in dissecting.

Aton and Allen will do anything.

Ballard and Mechaim will travel.

Benson will represent Lake View Hospital.

Cohn and Currer; anything easy.

Gross will show the Elgin girls a time.

Douglas, "workin' on the railroad."

Soleburg, entertaining the ladies.

Epstine and Peterson, every body.

Fiery and Jacobs will peddle pills.

Jackson and Moor will go on the road.

Miss Dale, going back to old Missouri. See!

Grove and Odonell; Look for a job.

McGarry: Municipal grafting.

Himes, Hedrick and Hersick; helping papa on the farm.

McKee and Johnston Bros. will manage a prohibition chautauqua.

Borchart, insure lives (from future practice).

Kaczmarek, go fishin',

Parker wiil supply Oak Park with sporting goods.

Shaffer and Southwick will hunt rabbits for next year's biology class.

Thompson will see Yellow Stone Park.

Park, work in the office with his brother.

O'Sullivan, go to Alaska.

Smith and Gellispie will work in drug stores.

Graner and Greenburg will peddle green soap.

Goj will look for unknowns.

Largent will rope a few steers down in Texas.

Crouch will introduce KI in the west.

Epley, present his views to the laity.

Beatty breaking on the railroad.

Ostrowski, hunting a snap.

Pulley looking after his dairy interests down in Indiana.

McNealy, take to the woods.

Greenburg and Foronda will conduct a show on State street.

Frognes, drive a water wagon.

Voigt will look for a girl

At a recent meeting of the Y. W. C. A. the following officers were elected:

President—Mrs. Jennie M. Park,
Vice President—Miss Cora Kipp.
Secretary—Marian Farbar.
Treasurer—Pauline Kapsa.

RESOLUTIOSS.

WHEREAS, The all wise God in his infinite wisdom has seen fit to call home from this world Frank Lindsey, the oldest son of our professors Mr. and Mrs. Wynekoop, be it

Resolved, That we, the Freshmen class of the College of Physicians and Surgeons join in expressing our heartfelt sympathy to the bereaved parents in their loss. Be it also

Resolved, That a copy of this be sent to Mr. and Mrs. Wynekoop, one sent for publication to THE PLEXUS, and one entered upon our class roll.

G. G. Thompson }
Jas. Donohue } Committee.
Wm. H. Bradley }

SCHOOL OF DENTISTRY

DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., APRIL 20th, 1907.

DENTAL PATHOLOGY.

By George W. Cook, B. S., D. D. S., Chicago.

Dean of Dental Department University of Illinois: Professor of Bacteriology and Pathology University of Illinois; Professor of Oral Surgery, Dearborn Medical College.

We have just spoken of that phase of speculative pathology that pertains to those cellular toxines that might under favorable circumstances be the result of cellular activity of the animal body, especially in the higher form of the animal kingdom, as in man. But as we have previously stated, this condition is purely hypothetical; as Victor C. Vaughn has said, "auto-intoxication is usually used to cover up our ignorance." He further says, "the time has not yet come for a thorough investigation of this subject. It is, indeed, almost impossible to give a single case in which you can exclude external factors which influence the diseased condition." However, we shall not discuss this question farther at this time.

There are certain poisonous products formed outside of the body that will produce certain phenomena purely poisonous, when introduced into the animal organism. The result of such introduction is called oxogenous intoxication.

The products are sometimes classed upon the heads of causes of immediate or of remote action. The most common, perhaps, of these are poisons usually called ptomaines, produced by the action of bacteria on dead organic substance. These agents, however, will be discussed later when we review more closely the action of bacteria.

Under the head of poisons we might remark that the caustic irritations belong to the acids and alkalis as well as the salts of the heavy metals, especially mercury, zinc, silver and antimony. A few vegetable substances, however, such as mustard and croton oil, and a few animal products like that of cantharidin, venon, etc., the pathological lesions produced in each individual poison is always in proportion to its activities in particular tissue cells. For instance, if some of these, such as cantharides and mustard, are applied to the skin they will produce an erythematous condition in the locality where they are applied; and if the application be continued long enough vesication and necrosis will be the result, while if croton oil is applied there will appear characteristic pustulation.

The poisonous products that belong to the class known as venom are usually introduced by insects or various forms belonging to the scorpion, centipede and tarantula variety. As a rule these cause more destructive changes in the tissues than those of other such forms, as the wasp or spider. Serpents of various kinds, and especially the viperidi, are still more poisonous, but can not be discussed in a work of this kind. The reader is referred to the discussion of this subject and to the more extended study of the question as found in the work on toxicology. But it should be remembered in this connection that some of the poisons with immediate and remote action many times are harmless when introduced into the body in a dilute form. Such poisonous products as arsenic and phosphorus, with that of antimony, have previously been discussed under their various heads.

In speaking of the poisons classed under the head of remote action there are those agents that are readily absorbed and are hastily carried to certain organs for elimination, in this way producing the pathological changes that are so common and constant when they are introduced into the animal body. It would be interesting as well as profitable if time and space would permit to discuss the physical chemistry of the cell constituents of the animal organism, because upon this rests the fundamental basic principles of pathology, especially that part of pathology that pertains to the microscopic study of cellular changes in animal organism. But as we have previously stated there perhaps is no change produced in the cells of the body that can be classed as pathological except it be through some external agent being introduced in sufficient quantities to bring about either immediate or remote, physical or chemical function in some part of the animal organism.

In discussing the subject of pathology one can not do the subject justice without taking into consideration the defects of development. Any departure in purely functional or anatomical changes from the normal embryological developmental processes will lead to some so-called malformation. We usually speak of the typical formation of an organism, whether it be multicellular or unicellular, as the normal form of that particular specie. Those animal or vegetable forms that deviate in their structure or function from the normal type of their specie we speak of as atypical malformations. If this deviation from the normal type of unusually large, they are designated as monsters, which means grossly malformed type. The deviation from the normal may occur in various ways. For instance, a partially divided individual, or two individuals united, constitute deviations from the normal individual; and a deviation from the normal is classified in accordance with the degrees of deviation. The so-called hare-lip is one of the forms of defects in development. Such deformities as those just mentioned bring about certain interferences with nutrition. For instance, in the case of hare-lip the child is unable to nurse in the usual way, and certain functional activities in the body are so disturbed that many, if not all, of the physiological functions are crippled, of necessity rendering the individual incapable of becoming fully and well developed as he otherwise would be if it were not for this deformity.

The cause of these malformations is not by any means well understood. In cases where this deviation from the normal is very extensive it begins early in the embryological process, and the majority of authors are of the opinion that it begins at about the stage when the process of modifiation of the various tissue cells begins. There are, however, many deformities that come even later in fetal life and even after birth. This is especially observed in certain developmental processes of the teeth and jaws.

Experiments have been carried on in some of the vertebrate and invertebrate which show that a disturbance of the egg or ovum will many times bring about monstrosities and other deviations from the normal. The rolling or moving about of an egg will cause malformation in a chick. The evidence of the extended deviation from the normal forcefully illustrates that even a very slight deviation in certain tissues or cells may render that part slightly abnormal, but not to the extent perhaps that it could be recognized by the naked eye or even sometimes by microscopic means. An illustration which might be given is found in the case of a tetanus bacillus, which normally grows in the absence of the free oxygen of the air. If it be changed from an anærobic to an ærobic environment it will lose for the time being at least its power to produce the tetanus toxin, which is its main function in its natural habitat.

This illustration serves to prove how sensitive protop lasma is to its normal environments or to the absence of its normal environments. This brings us to a point that is extremely important to us, the question of nutrition. This is a subject that is as broad and far-reaching in pathological questions as any subject could possibly be, for it directly or indirectly influences almost any question under consideration. With normal conditions it might be said that the appetite is usually a satisfactory guide to the quantity of food necessary to be consumed. But there is a diseased condition in which the appetite is abnormally great, a condition in which the individual takes more than the necessary quantity of food. This is called bulimia. The opposite to this term is anorexia, which means that the appetite does not crave the quantity of food necessary for the full maintenance of the nutrition that is required to sustain the physical forces. Pica is a term that is applied to the abnormalities of the appetite, which is as extensive as ranging from those craving for candy or pickles to cannibals or earth-eating individuals. There are some cases described in which there is an actual dread of food. This is called sitophobia.

In speaking along these lines it may be well to state that thirst is also often abnormal, and one will take the same position with reference to drinking as that of eating. This form of diversion is manifested more often in the form of a craving for liquids than in any other way. This is called polydipsia. These symptoms are beautifully illustrated in diabetes mellitus. This appetite is manifested also very stongly in the craving for spiritous liquids and is usually designated as dipsomania.

In the conditions just mentioned, with the various forms of deviation from the normal appetite, if food is not taken in, there at once appear the characteristic signs of loss of tissue, which manifest themselves at first in the tissue of the body that play the least useful part in the body for functional activity, and that is the adipose tissue; then they extend to the muscular tissue and greatly impair the whole physical forces of the body. The excess of food has, as a rule, less harmful influence on the body than does the lack of food; however, the former can be a source of great concern under some circumstances.

The foodstuffs that carry on the function of the life process naturally fall into three groups—namely: proteids, carbohydrates, and fats. Under the group of proteids are classed albumins and albuminoids. These substances are principally digested in the stomach and small intestines, and they are acted upon, as is well known, by two active ferments, pepsin and trypsin. Pepsin is the result of the activities of the gastric glands. Trypsin is a ferment of the pancreas. The action of these two ferments is to render non-diffusible peptone into diffusible peptone. The active peptonization of albumins usually must take place in strongly acid solution, while the action of trypsin on albumin can only be accomplished in an alkaline solution. The chemical changes resulting from the action of these ferments on albuminous compounds are quite similar to each other. The first action that is accomplished in this process is the action resulting from hydrochloric acid and pepsin upon the proteid, producing acid albumin (syntonin); then this is converted into albumose or primary globulose. The secondary stage develops deutero-albumose, sometimes called proteoses; then the last diffusible amphopeptone, the action of which is called peptic digestton. The tryptic digestion begins and ends with some variations from the one just described. The trypsin converts proteids into deutero-albumose or globulose, and here instead of having amphopeptone formed we have antipeptone. We sometimes have a diversion from the last named agent and have hemipeptones formed. The antipeptones are useful nutritive substances, but the hemipeptones can be further reduced into certain end products, such for instance, as leucin and tyrosin, asparic acid, trytophan, and various other acid bases belonging to some of the aromatic forms of certain chemical processes.

It may be seen here how these various processes may become diverted from purely normal physiological lines to pathological proteid digestion. It might be possible that abnormal secretion of pepsin, abnormal quantities of free acids, etc., might appear in these processes, any one of which might bring about some very pathological processes of digestion.

The digestion of carbohydrates is, or should be, well understood by every dental student that it would require little discussion at this time, but a few passing remarks at this point may enable the student again to refresh his mind as to carbohydrate digeston. The process takes place in the mouth and stomach by a ferment found in the saliva (ptyalin). After the carbohydrate passes through this process and reaches the intestines it is further acted upon by amylopsin, a ferment of the pancreatic juice. This last ferment may be said to be the last and final in the digestive process of carbohydrates. The ptyalin of the saliva and amylopsin of the pancreatic juice convert starch into sugar. The final end product of this process is maltose. The pathological carbohydrate digestion is a subject that must receive more attention and investigation before many of these pathological phenomena can be thoroughly elucidated.

The digestion of fat is accomplished principally by another enzyme of the pancreatic secretion (steapsin). The chemical manipulation in the body of this material is not well known, but the probabilities are that the fat is slit, by hydrolitic cleavage, into glycerine and fatty acids, and the fatty acids combining with the alkaline salts of the bile and intestinal juices form a sort of soap. Glycerine and soap are easily diffusible and in all probabilities this diffusion allows fat to find its way into the metabolism of the animal economy. In the case of disease of the pancreas there is a decided pathological condition taking place in fat digestion. The presence of inorganic salts in the nutritive functional activity of the body are so apparent that they hardly require any consideration at the present time.

The word metobolism plays such an important part in our consideration of all living processes, whether they be normal or abnormal, that we must here give some consideration to the meaning. As the term is most commonly used, we shall state briefly that metabolism is a molecular change in which all living substance must take an active part. Certain molecular alterations of the tissue manifest themselves by the changing of energy of certain food products into the energy and tissues of the animal economy. This molecular rearrangement that we ordinarily speak of as metabolic processes are usually looked upon as chemical processes peculiar and inherent only in living substance and is divided into two distinctive groups. Anabolic is terminated to designate a synthetic process and which is accomplished in the cells of living tissue when certain nutrient materials are brought to them through the circulating blood. This process is accomplished by the aid of an enzyme characteristic of particular cells or fluids, and is constant under normal circumstances in an effort to build up a more complexed structure.

Katabolic processes are for the most part analytic in their tendency and apparantly acting as a reducing substance, or tend to break down the highly complexed synthetic products into the simpler compounds again, or, in other words, to bring them back to the simpler element or to the inorganic molecule.

(To be continued.)

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BOTANICAL EXCURSIONS.

For many years the students of the school have had the opportunity of attending a series of botanical excursions. These were instituted by Professor Goodman, but for several seasons have been in charge of Professor Day. The object of these excursions is to acquaint the student with the more common medicinal plants native to this vicinity, and to teach the application of the knowledge of botany gained during the winter session to actual field work. Owing to the fact that all of the students are employed in drug stores during the summer vacation, the attendance on the excursions has not been large. This operates to the advantage of those who are able to attend, however, as a class of from twelve to twenty is more easily handled, and each member receives a larger share of attention than could be given if the number were greater. No charge is made for this instruction and pharmacists who may be interested in botany are invited to take part.

Excursions for the coming season are announced as follows:

Thursday, May 2, to Glencoe, Ill. Take C. & N. W train (Milwaukee division) at 1:30 P. M.

Thursday, May 16, to Hinsdale, Ill. Take C. B. & Q. train leaving about 10 o'clock.

Thursday, May 25, to West Pullman, Ill. Take Calumet Electric at 63rd Street and South Park Ave., at 1:30 P. M.

Thursday, June 6, to Glencoe, Ill. Take C. & N. W., about 10 o'clock.

Thursday, June 20, to East Chicago, Ind. Take Calumet Electric car at 63rd St. and Madison Ave. at 10 o'clock.

SENIOR NOTES.

Following the long established custom the Senior class will present to the school a class picture including individual photographs of the members of the class and faculty, the whole being suitably mounted and framed. The school has a complete set of these class pictures, beginning with 1873 and forming a most interesting and valuable collection. The 1907 picture is being prepared by Willard-Jones and is expected to arrive at the school about the 15th of April.

About seventy of the students will participate in the visit of the classes to the laboratories of Parke, Davis & Co on the 10th. The excursionists will leave here Thursday evening and arrive in Detroit the next morning. Friday will be spent in an inspection of the plant, the largest of its kind in the world, and the return trip will be made Friday night.

Professor Hallberg gave the boys a good rousing talk as a closing lecture, devoting over two hours to his effort, which was well received and highly appreciated by the class.

Huston will remain in Chicago during the summer, having gone back to his former position with James & Dewey, 63rd St. and Ingleside Ave.

Haines has taken a position with Alfred J. Shilling, 35th St. and Cottage Grove Ave.

Blahnik will manage his father's drug store on W. 47th Street.

Thomson is going back to Colorado and Reuter will return to Oregon.

Schinz expects to work for W. J. Clancy, at La Salle, Ill.

Many of the students will remain in Chicago and several are planning to take in the botanical excursions.

FRATERNITY BANQUET.

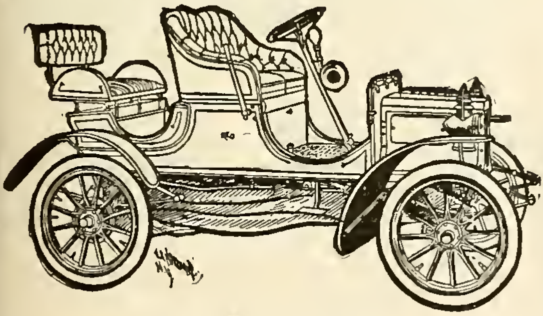
The Phi Gamma Sigma Fraternity held their first annual banquet at the Bismarck, Wednesday evening, April 10th. It was the final reunion for the year and much spirit was shown among the fellows.

Professor C. M. Snow acted as toast master, which place he filled admirably, making several local hits. F. E. Blake responded to the toast "The Fraternity." President Karl Anderson spoke for the Senior class. Herbert Smith and Raleigh Earel spoke for the first year men. Professor Day talked for the college. He paid a high tribute to the personell of the fellows, and alluded to the great field of usefulness which the future holds out to the fraternity. He assured the boys that the faculty stands ready to help and work with them. He then gave a concise and interesting history of the college.

The evening thus spent was a happy ending for the Beta Chapter's first year.

THE AMERICAN MEDICAL DIRECTORY, VOLUME I., A Register of Legally Qualified Physicians of the United States and Canada. Chicago. The American Medical Association Press. 1806. Pp. 1482.

The preparation of this work has occupied nearly two years. It is based on the official record of state license boards, medical colleges and medical societies, and in the *Foreword* the editors say: "The collection of biographical material regarding the personnel of the medical profession will be continued. For the first time in the history of American medicine a directory has been issued which is owned, compiled and published by the medical profession, for its own use and purposes." The work is very conveniently arranged; the type is good; it is well printed, and is in wonderful contrast with the huge volume of *Polk* and its uninteresting pages of advertisements. We heartily commend the work to our readers.



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VOL. XIII. BATAVIA, MAY 20th, 1906. NO 4.

A CONSIDERATION OF RETRO-VERSIO-FLEXIONS OF THE UTERUS, IN THEIR RELATION TO PREGNANCY.*

By Dr. Channing W. Barrett, Chicago.

Gynecologist to Chicago Policlinic School and Hospital; Professor of Gynecology, Chicago Clinical School; Adjunct Professor of Gynecology, University of Illinois Medical School; Surgeon and Gynecologist Marion Sims Hospital; Obstetrician to Cook County Hospital, Etc.

There is a sense in which every retro-displacement in a child-bearing woman bears a relation to future pregnancy, but I wish more particularly to direct my remarks to the co-existence of the two conditions. There is evidence that incarceration of the uterus was recognized as long ago as the time of Hippocrates; Gregoire, of Paris, in an unpublished lecture also dealt with the subject. We are indebted, however, to John Hunter for much of our early information upon this subject, as upon many other subjects. In 1754 he delivered a lecture upon incarceration of the pregnant uterus, and instituted the use of the term "retroversion." In 1776, in Medical Observations and Inquiries, he deals with the cause of the condition, and lays stress upon a roomy lower portion of the pelvis lacking adipose tissue, and a constricted inlet together with over-distension of the bladder from some cause, as etiological factors. This is known as Hunter's theory, and his opinion that the condition was secondary to bladder distension was credited and maintained by such men as Denman, Ramsbotham, Robert Lee, Meigs and others, as shown by W. Tyler Smith in his quotations from their writings. Smith also quotes Rigby as believing that retro-displacement precedes bladder distension, and is a cause of it. He then reports several cases showing that the displacement is primary, therefore combating Hunter's theory. This is now a matter of history. That a previously retro-displaced uterus frequently becomes pregnant cannot now be doubted. This may be a boon to the patient suffering from retro-displacement, or it may multiply the evils of the displacement several fold. Williams states that displacements and pathology resulting therefrom are among the most frequent causes of spontaneous abortion.

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*Read before the Mississippi Valley Medical Society, Nov. 1896.

When we remember the causes of retro-displacement, which may be said to be, first, anything which increases the weight of the uterus; second, anything which decreases the carrying power of its supports—ligaments, pelvic floor, cellular tissue, etc.; and third, anything which makes traction or exerts force in the wrong direction, we will readily see that retro-displacement may be favored during the early months of pregnancy by reason of the congestion and extra weight of the uterus and other pelvic organs. In some cases the downward displacement of the uterus is only slight, and in others it is extensive. In normal cases the extent is not so great as to cause great inconvenience, and the uterus soon ascends as the result of growth. Displacement of the non-pregnant uterus and its accompanying pathology may cause more or less distressing symptoms, but seldom imperils life, The accompanying diseases of retro-displacement may cause sterility, but this is by no means constant. What may be expected in those cases in which pregnancy takes place, or in which retro-displacement follows pregnancy? There is apt to be an increased displacement with aggravation of the symptoms; then one of four things may take place:

First. The uterus may return to normal position and symptoms be relieved or disappear. This frequently occurs even in spite of some adhesion.

Second. Abortion may and frequently does follow. This is undoubtedly due at times to the endometritis and other complications, but, as stated by Williams, it is unquestionably due at times to the retro-displacement.

Third. Incarceration may take place, causing abortion, retention of the urine, sloughing of portions of the bladder, peritonitis, etc.

Fourth. Pregnancy may continue to term, with the uterus still retroflexed, causing only moderate, mild, or almost no symptoms. This condition, as shown by Oldham, may become a complication of labor.

Fortunately the first-class furnish a large number and the third and fourth only a small number. Unfortunately, however, a large number of the second-class are found. The outcome depends upon the complications, and the tolerance of the uterus. Abortion is favored by the presence of endometritis, septic condition, adhesions, etc. Incarceration is favored by extensive adhesions, a deformed pelvis with an overhanging promontory. Sinclair has denied the possibility of pregnancy existing with adhesions of any extent, but the findings of almost every operator contradict this.

It would seem that the continuance of a retroflexed or retroverted uterus to full term pregnancy must be accompanied with a great degree of tolerance on the part of the uterus, the bladder and the patient herself.

TREATMENT.

The treatment to be advised is to be based upon the present conception of the value of different methods of treatment in retro-displacement, of the danger of or absence of danger of radical cure, of the tolerance of pregnant women for an operation, of the value of the life of the child, and lastly, the method of operation. It must not be based upon the conception of these matters fifteen, or ten, or even five years ago.

If a laparotomy is considered dangerous, and the same operation upon a pregnant woman much more dangerous, the life of the fetus of little value, and there is no method of permanently curing the retro-displacement, then will abortion, incarceration and death be the rule. If we can make a laparotomy fairly safe, if this danger is only slightly increased in the pregnant woman, if the rights of the child are recognized and an operation can be performed that prevents the possibility or probability of a return of the displacement after delivery, then will these cases be operated upon early. Last resort surgery in this, as in other conditions, will be less popular.

Most of us agree, no doubt, that a judicious correction of the displacement before pregnancy would be a good prophylactic measure, yet this proposition would find dissentors. I do not wish to make that the burden of this paper. When pregnancy and retro-displacement exist together I think we could further agree that an effort to replace the uterus should be made. This is sometimes accomplished with ease and sometimes with great difficulty, and is sometimes found impossible. The knee-chest position should be assumed by the patient at the time of replacement, and also at other times, and in those cases in which efforts at replacement fail, an anæsthetic is sometimes desirable.

If the uterus is replaced, it may be held in position by means of a pessary. In those cases in which efforts at replacement fail, the case may be watched, the knee-chest position advised frequently; and mild efforts made at intervals to get the growing uterus in front of the promontory. Frequently the uterus will be righted with these efforts. Sinclair claims great success in replacing retroverted pregnant uteri, even when incarceration exists, by means of a watch-spring pessary, but others have not found it so successful. I have had no experience with pessaries except to hold the uterus after it has been replaced. Cases are recorded where saculation of the wall of the uterus in the abdomen has drawn the rest of the uterus out of the pelvis, even after considerable incarceration has taken place

With the first signs of intolerance on the part of the uterus, abortion or incarceration should not be waited for. With the bladder and rectum empty, a moderate yet thorough effort may be made to replace the organ by the means suggested. This failing, some have advised emptying the uterus, and as a means to that end in cases of incarceration puncture of the uterus through the vaginal wall has been advised in cases in which the uterus could not readily be emptied. The latter procedure is to be condemned in the interest of the mother. The puncture may be so located as to be equivalent to a rupture of the uterus into the peritoneal cavity. The emptying of the uterus is to be condemned in the interest of the child.

In the light of our present aseptic technique, the tolerance of the pregnant woman to operations, and our present methods of permanently curing retro-displacements without creating new pathology, I wish to enter a *plea for earlier and move efficient treatment of these cases.* I see no reason why we should advise or wait for abortion. If abortion is already inevitable, the uterus, of course, must be emptied. But with the uterus intolerant, with abortion only threatening, or with incarceration, other means failing, the abdomen should be opened and the uterus returned to position, complications dealt with, and if conditions are such as to warrant it, a radical operation should be performed for the retro-displacement. In the days of ventro-suspensio-fixation, the radical cure could not well be advised, although Fry pleads for earlier treatment in his cases, with ventro-suspension for the radical cure. There are few who would be so bold, or I might say injudicious as to fix or suspend a pregnant uterus, and yet Lapthorne Smith and others, as well as Fry, have used this method, and some of these cases have gone to term. Kelly, after a long effort to justify suspensio uteri in his new edition of Operative Gynaecology, cautions against suspending this organ, if pregnancy exists, even during the early weeks. He argues that fixation, instead of suspension, may result, and in order to avoid such a possibility, he advises routine curretage, saying, that "It would seem better to do an unwitting abortion on a woman whom we did not suspect to be pregnant, than to occasion fixation in a pregnant uterus." To this I would say that we must have a better reason for curettage. If pregnancy does not exist, the curattage for this purpose is unnecessary, and if it does exist, curettage is unjustifiable.

No argument is necessary to prove that this is not the operation in cases in which the abdomen must be opened, much less the operation which will encourage the early attention that these cases deserve before abortion is in progress or the uterus incarcerated. We scarcely feel justified in opening the abdomen to replace a retroverted pregnant uterus without the most urgent symptoms if the patient is not to be given the benefit of the radical cure. To operate upon these cases when most advantageous to the mother and child, the operation must offer the following safeguards and advantages.

First, it must be safe for the mother.

Second, it must decrease the fœtal mortality.

Third, it must insure or promise a permanent cure of the retrodisplacement.

With these conditions secured, instead of pregnancy being a bar to an operation, it may at times furnish an urgent argument for an operation. Time was when we were inclined to look upon the pregnant woman as exempt from surgery. The time is now coming when under some circumstances we will say, "This woman needs an early operation *because* she is pregnant." Then a large number of abortions and incarcerations will be prevented. I have laid some stress upon the inadvisability of using ventro-suspensio-fixation. The method of operating has much to do with the betterment of conditions, and I therefore crave the indulgence of the society while I call attention to an operation described by myself in 1905. This operation was fully described, and I will therefore only briefly review the main points.

First, the round ligaments are picked up about two-thirds the distance from the uterus to the internal ring, and control ligatures put around them.

Second, a special long curved ligature carrier is carried outward from the lower angle of the abdominal incision, under the external oblique fascia, over the rectus muscle, till its point reaches the region of the internal ring. When it is pushed into the abdominal cavity through the ring.

Third, the control ligature is grasped with this forcep and drawn through the internal ring and to the abdominal incision, along the course taken by the ligature carrier.

Fourth, the loops of round ligament are sewed to the under side of the aponeurosis of the external oblique muscle and then if long enough are sewed together over the recti muscles. This operation offers for these cases under consideration the following advantages:

First, it may be performed through a very small incision.

Seoond, it does no sewing to the uterus.

Third, it permanently holds the uterus, yet allows normal mobility.

Fourth, it takes the ligament out of the abdomen at the proper place, the internal ring, and so creates no false ligament or false placing of the ligament, as was the case in former operations. This, then, offers a manner of dealing with retro-versio-flexion during pregnancy earlier and with less marked symptoms than formerly, and yet being entirely within the bounds of rational conservative surgery.

Of course I am well aware that some will say, "Yes, the treatment advised may do all right for places which offer proper advantages, but out here in the country I would prefer to empty the uterus, puncture it if necessary, anything to avoid laparotomy." In answer I will say that I have not heard of any community in the Mississippi Valley so isolated, with transportation so poor, that they kill their insane rather than transfer them to an asylum. Then why should we advise the killing of these more useful members of society?

I wish to insert a brief report of a case, not because it verifies the position taken, but because it presents features of interest in this connection.

Mrs. P., referred to me by Dr. S., of Wisconsin, gave the following history: Well until a few weeks previous, when patient, who considered herself about three and one-half months pregnant, began to suffer with bladder irritability. This was followed by retention, at which time Dr. S. was called. A large amount of urine was drawn with the catheter, and a deceptive mass was found in the pelvis. As the patient was eight or ten miles from the doctor, a catheter was left with the family, and some member instructed in its use. The bladder soon became infected, and urine mixed with blood and pus was obtained. The mass increased in size, and she was brought to the city and placed in the hospital.

Examination showed a large, plethoric woman, in appearance about 40 years of age, face flushed and feverish in appearance. Temperature running as high as 103. Abdomen large, distended and tender. Fluctuating mass in the lower abdomen found. Tense semi-fluctuating mass found in the pelvis, crowding the vagina forward and the rectum backward. Cervix not to be palpated. Catheter inserted with some difficulty and a large amount of bloody and purulent urine was withdrawn. The fluctuating abdominal mass which at first was considered as a possible pregnant uterus, had disappeared. The cervix could not yet be located. There had been no hemorrhage from the uterus. A diagnosis of incarceration of a retro-verted pregnant uterus was made. The bladder was irrigated with boric acid solution three times s day, and urotropin and uriseptin administered. The patient was placed in a knee-chest position and moderate efforts were made to replace the uterus. The condition of the tubes and ovaries and pelvic peritoneum could not be determined. The tenderness and the temperature suggested the possibility of inflamed tubes, adhesions and peritonitis. With this in mind, forcible efforts were not made. The condition of the urine improved under treatment, but did not entirely clear. Laparotomy was advised as the best means of dealing with possible complications and offering some hope for the fœtus.

An abdominal opening, sufficient to admit the hand, was made. The peritoneum about the pelvis was found injected and œdematous. The tubes and ovaries and ligaments were found much distended and œdematous, and the uterus appeared œdematous and bluish in color. The cervix was found high up and pointing toward the umbilicus with the bladder running over it. The uterus seemed to fill every nook of the pelvis, and round out above it. The hand was carefully and with difficulty worked between the uterus and the sacrum, well down under the organ, and efforts were made to lift or turn the uterus out of the pelvis. This was done carefully, with a view of saving the fetus. These efforts proved unsuccessful, the pelvis seeming to act as a vacuum. I now took a large sponge on a holder and pushed the cervix downward, at the same time lifting upon the broad ligaments. As the cervix was carried downward, the fundus rolled out of the pelvis, and the uterus showed such size as to be a cause of wonder that it could be contained in the pelvis. The following day the nurse made the observation that the bag of waters was projecting from the vulva, but labor pains appeared to be absent. The interne was called and made the mistake of breaking the sac. The uterus made little or no effort to empty itself, and the second day following the operation the uterus was emptied surgically of a four and a half months fœtus and membranes, without anæsthetics. The temperature and cystitis that had existed prior to the laparotomy gradually subsided, and the patient made an uneventful recovery.

Laparotomy here did not save the fetus. Had there been evidence that abortion would follow, an effort to empty the uterus without laparotomy would have been indicated. On the other hand an earlier operation would have offered greater safety to the woman, wonld have prevented much suffering, and would probably have saved the life of the fetus.

Another case, which was found to have a retro-versio-flexed pregnant uterus, with abortion threatening and a two-fist sized ovarian cyst, was operated upon. The cyst, which was ruptured during an effort to replace the uterus, was removed, the adherent uterus was freed; and the round ligaments shortened within the abdomen. This patient went to term and gave birth to a large, healthy boy baby. Had this occurred since my use of the described operation, I am sure I would have been saved embarrassment of finding a return of the retro-displacement after the confinement as I did in this case.

Since this paper was read I have had the good fortune to have operated upon a young woman four months pregnant with incarceration of the uterus. The adhesions which were extensive were broken up, a pus tube was removed and my round ligament operation was performed to permanently cure the retro-displacement. The pregnancy is progressing now at the end of the sixth month without unfavorable symptoms. This case will be described in detail in a paper soon to be read.

In 67 fatal cases collected from literature by Gottschalk the cause of death was as follows:

Peritonitis of vesical origin	17
Uraemia	16
Rupture of the bladder	11
Septecemia of vesical origin	4
Gangrene of the bladder	3

Other causes operated less frequently to make the 67 cases.

Mann advises laparotomy as a means of correcting incarcerated uteri, but wisely advises against ventro-suspension, as has been advised by Fry.

Cases known to have had retro-displacement should be carefully treated by position, tampons, pessaries, etc., after confinement, that if possible, while these structures are undergoing nature's involution, the uterus may be made to take and retain its normal position.

In conclusion I would state my position briefly as follows: First, retro-versio-flexion is a pathological condition and worthy of appropriate treatment, operative or non-operative.

Second, pregnancy may be the means of cure of retroversio-flexion, but may on the other hand, seriously complicate the condition.

Third, a retro-displaced pregnant uterus should be replaced as soon as possible, and if necessary held in position by means of a pessary.

Fourth, a retro-displacement during the early weeks of pregnancy that cannot immediately be replaced, should be supervised and efforts should be made to assist its return to normal position as growth advances.

Fifth, An irreducable retro-displaced pregnant uterus that shows beginning signs of intolerance or incarceration, should have the rational operation for the retro-displacement rather than be emptied or punctured.

Sixth, In cases of inevitable abortion, the uterus should be emptied and retro-displacement, if possible, corrected, the radical operation following later if necessary.

Seventh, Cases of marked incarceration should have the benefit of abdominal section, unless abortion is inevitable.

Eighth, Cases operated on should have the radical operation if conditions are such as to warrant its performance.

Ninth, Should a retro-displacement correct itself, or be corrected during pregnancy without operation, it should be carefully supervised after confinement, with a view of permanently correcting the mal position.

100 State St.

SENIOR PROPHECY.

Hushed evening time—the last day was nearing a close and soon I must make my departure, probably never again to enter. I had not looked into the future of half my classmates yet and I was hurrying—snapping futuroscope and futuroscope—reading life's joys and sorrows, her failures and successes. Down the line I went reading the story of lives yet unlived, lives of friends I knew and knew well.

A peep into Dr. James Greybeal's past and future and I saw at a glance the doctor had at last won what he had been striving for, professor of the chair of operative gynecology in his old Alma Mater, the leading medical college now of the west.

As I saw him lecturing and operating before the Senior class of 1915, which numbered nearly eight hundred, he had changed very little since a student; he had that same earnestness and business-like manner which convinced everybody he knew what he was talking about.

Passing on came "Bobby" Hanson's life before me. I saw Dr. Hansen in partnership with Dr. Joseph Hall Whiteley, and they were located in Iowa. Bobby was as cheerful as ever and they were making things hum in the little burg. People like the "cheer up" physician and they are always successful from the word go. As I saw Dr. Whiteley sitting in his office chair I noticed he was still wearing red hosiery, a pair from the stock he brought with him to Chicago years ago when he was attending college.

Away up the land of Bryanism and other stranger beings, I saw Dr. Johannes Johnson and Dr. J. Carl Steiner located. They made a great team, full of that Nebraska ozone their energy and ambition was only equaled by their skill and ability as practitioners. They were on the road night and day, having nearly all the obstetrical practice in that neck of woods for miles around. They were considered the best obstetricians in the state.

Opening another scope near by I read the sign, August Walter Pearson, M. D. The country town I recognized as a little suburb of Minneapolis. He had a well established practice, and the doctor even at the early age of thirty-eight was retiring; having enough money to see him comfortably through life.

As I hurried along I accidentally knocked open the futuroscope of Dr. Rose Zalesky, and I was startled to see the sign over her office door changed again. It now read Drs. Conroy, Conroy, Conser and Witkoski. The firm was certainly doing all the business in St. Paul.

In a suburb of Madison, Wis., I saw Dr. George Mortimer Smith located. His professional bearing and general good fellowship had won him the reputation of one of the best physicians any college can turn out.

Down the line of futuroscopes I rushed, opening lever after lever.

I glanced on the future of a bunch of good fellows, good men and all successful. There was Hiram Joy Smith, Edward Walter Thurer, George J. Mautz, well trained college men and all making a mark in the field of medicine.

In New York I saw our old Dr. Willis Elmer Keith—the pale face—located. He was physician and surgeon for the Home of Misfortunate Actresses. His extensive acquaintance with actors and actresses made him peculiarly fitted for the place he held and his tact in handling these sensitive people made him the success he had attained.

In a western mining camp I saw Dr. Arthur Luther Kusske, of Minnesota. The doctor was in his glory among these western people, he could "rough house" as much as he wanted to. The doctor was carrying out the motto of our class to the letter, whether it was professional business or a fight it made no difference. All the miners respected him; he was massing a fortune; the gold dust was pouring into his office each day, and the name of Dr. Kusske stood for high professional skill, rapid double action, and unlimited credit at the bank.

Drs. Rose and Kingsberry (of course it could not be otherwise) I read as I saw Madison street, Chicago, flash before my eyes. They were two of the leading gynecologists on the street and their offices were always crowded with the leading women of the West Side.

Dr. J. E. Earl Nelles, after he finished his interneship in the West Side Hospital, immediately located at 103 State street, and was an eminently successful pediatrist. He knew how to talk to mothers about their children, and to be able to handle mothers is two-thirds of the treatment of a successful physician of children.

Dr. Walter Scott Muirhead I saw as physician and surgeon for Ringling Bros. circus. With a flashy white suit and silk hat the doctor certainly looked distinguished as I saw him making his professional rounds among the actors and actresses and employees of the world's greatest shows.

Dr. Arthur Matthew Rodermund I saw located in Wisconsin, the same quiet physician as he was as a student. He always liked research work and after office hours you could find him in his laboratory until two or three o'clock in the morning, forgetful of everything, even his wife at home. He was known as the best bacteriologist in the state. His most noted discovery was the "Frat" germ, and, like other great acientists, he was accidentally innoculated with his own discovery.

To be continued in June.

NEWS NOTES.

Bernard Fantus, M. D., formerly at 443 Marshfield Ave., announces the removal of his office and residence to 328 Marshfield Ave., near Harrison St., where he will continue his practice of medicine.

Dr. G. H. Lawrence, '96, is departing shortly for a three months' course in the clinics of Berlin.

The lady students of the College of Physicians and Surgeons, the lady teachers, and the lady ex-internes of Cook County Hospital gave a banquet in honor of Misses Bettie Nilsson and Clara Seipple, in recognition of their success in acquiring interneships at Cook County Hospital.

About 50 were present and a very enjoyable time was reported. The banquet was given at Carrieabbies on Tuesday, May 2nd.

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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THE SUMMER SESSION.

The summer term at the College of Physicians and Surgeons begins Thursday, June '06–07, and continues during the following twelve weeks ending Thursday, Aug. 29.

The desirability of taking the summer work is being appreciated by a greater number of students each succeeding year, and the term just starting is no exception to the rule.

The arrangement of the schedule for the present year could not be improved upon and those who avail themselves of the course will have ample time next year, in case of the senior class, to prepare for the State Board examination without detriment to their regular work. or by registering for the entire summer work students will be in a position to accept externeships in the various hospitals and thus get acquainted with the practical side of their chosen profession.

The Juniors will do well to stay for the summer too, as it will give them an opportunity to register for quite a bit of Senior work during the next winter course, thus giving them all the advantages of being ahead in their work and able to enjoy the undeniable advantage of having more time to prepare themselves in medicine in their Senior year.

THE PLEXUS advises all who possibly can to register for the summer session.

LIBRARY NOTES.

The following articles have been noted in the medical journals which are to be found on file in the Quine Library reading room:

Dr. A. H. Ferguson: Surgery of the Thyroid Gland. *Medical Herald.* May. pp. 213–223.

This is the Oration on Surgery delivered by Dr. Ferguson at the Nineteenth Semi-Annual Meeting of the Missouri Valley Medical Society.

Dr. C. W. Barrett: Endothelioma of the Ovary, *Surgery, Gynecology and Obstetrics.* May. pp. 549–573.

This article is Dr. Barrett's Inaugural Thesis for the Chicago Gynecological Society. Some of the elaborate illustrations which accompany the article are the work of Miss Amadon.

Dr. B. Holmes: Sigmoid Sinus Thrombosis without Conspicuous Mastoiditis. *Chicago Medical Recorder.* March.

Dr. B. Holmes: The Neglect of the Anamnesis. *Journal of the American Medical Association.* April 30. pp. 1349-1350.

Dr. H. T. Byford: Vaginal Section as an Operation of Choice. *Surgery, Gynecology and Obstetrics.*

Dr. G. F. Lydston: The Anatomosis of the Vas Deferentia. *Indiana Medical Journal.* May. pp. 431-433.

Dr. H. T. Byford: Vaginal Drainage for Pelvic Pus. *Surgery, Gynecology and Obstetrics.* April. pp. 512-514.

The following gifts have been made to the Quine Library, and grateful acknowledgment is hereby made to those who have made the contributions:

Dr. G. F. Earle: Four text books on Obstetrics and Pediatrics.

Dr. Babcock: His recently published text book entitled, Diseases of the Lungs.

Dr. Quine: Two copies of the *American Medical Directory.*

Miss Pattee: Her valuable work entitled, Practical Diabetics.

The Neurological Department of the Harvard Medical School: Contributions to the Study of Neurology.

A valuble contribution is that of Dr. Davison, who secured for the Quine Library a set of the Annual Reports of the State University, from its foundation in 1868 to the present time.

We have a new picture of Dr. D. A. K. Steel to add to the collection of portraits which adorn the walls of the reading room.

The reference work of the library has been somewhat hampered the past month, as the 1906 journals have been at the binder's, but we expect them back in a few days, and will again be able to supply our readers with the 1906 periodical literature.

The librarian wishes to acknowledge a kind letter from the members of the Quiz Class, appreciative of the benefit which the Quine Library has been to them during their year's study.

The librarian has been favored in seeing the volume which is being prepared for presentation to Dr. John H. Hollister, by the Illinois State Medical Society in commemoration of the fiftieth year of his membership in the State Medical Society, Dr. Hollister having joined the society at the Vandalia Meeting, June 3d, 1857. He is the sole survivor of those who were present at this meeting.

The book is printed on imported Japanese vellum, in heavy black Gothic type, with originally designed illuminated borders, a different scheme of coloring being used for each page. The illumination is the work of Mr. George D. Richards.

The binding. which was done by Miss Styles, is of crushed levant, in royal purple and gold, the colors being those of the Northwestern Medical College, of which Dr. Hollister is emeritus professor of Clinical Medicine.

The letter press consists of the resolutions passed by the Illinois Medical Society, authorizing the preparation of the memorial, a brief resume of the life of Dr. Hollister, and also a tribute to his work, his character, and his literary ability, by Dr. M. P. Hatfield, who is peculiarly fitted by a long acquaintance and an intimate friendship, to write the appreciative and discriminating tribute which most felicitously voices the sentiments of Dr. Hollister's friends.

SENIOR NOTES.

We expect to move June 4th.

Dr. Holmes,—"Arnold, tell about the opsonic index in tubercolosis.

Arnold,—"Why, er,—do you mean it?

Bissell—"Doctor, our quiz master told us that fats were deposited in the tissues in the form in which they are taken in; for example, sheep fat is deposited as sheep fat."

Dr. Dreyer.—"Perhaps that is the reason some of our students are so sheepish."

Dr Goodkind was gently reproving one of our number for being careless in his examination of a patient, because he had overlooked a very suggettive thing, a piece of cotton in the patient's ear, when the patient bluntly said, "there aint no cotton in my ear."

Quizmaster.—Mr. Brown, tell some more about the tuberculosis."

Brown.—"Well, I think about all the different phases have been 'expounded'."

Quizmaster.—"A person who uses that word must know all about the opsonic theory." But he didn't.

Mautz has taken his position at the West Side Hospital and of course the old interns thought a good joke on the new one would be the proper caper. Acting accordingly they fixed up a bottle of beer and glycerine and sent to our "colleague" for urinalysis.

Mantz immediately got busy, while the interns stood in the halls waiting for the report, just bubbling over with mirth and holding their sides for fear the expression of their humor might result in a fractured rib. Such a rich joke! It was just too funny for anything. It is thought that the internes gained a pound of adipose laughing over the report, to come. Now, Mentz took his "clinical mike" under Dr. Cook. He also has had experience in other lines, because when he determined the odor of the urine, remarked to a friend, "That smells like beer." But he completed the urinalysis and reported as follows to the nurse in charge of the patient. "If you desire any satisfactory report you will have to clean the bottles before putting the urine into them; this one had beer in it." That ended the joke, the interns stopped laughing, took the adhesive straps off their sides, and went to square matters for the innocent nurse.

Before another issue of the PLEXUS, the class of '07 will be scattered to the winds, some going out of the city to engage in the practice of their chosen profession, others remaining in Chicago, either in hospitals or in offices of their own.

We have spent four years to gether, and they have been years of work, perhaps a little remittant, but the fear of the lash ("0") kept up our efforts.

We will look back to our course in the P. & S. and forget the troubles we had, and the hardships we had to endure, and see most prominently the pleasures we enjoy by being in contact with our fellows. The ties of friendship and of common interest bind us together, and even though thousands of miles divide us that bond will not be broken.

That the class of '07 may go out into the world and deal honestly and successfully with human needs is of greatest importance and we have many in the class who will "make good."

JUNIOR NOTES.

The class elected the following officers at the annual election: President, G. J. Spencer; 1st Vice President, J. O. Lunn; 2 Vice President, Miss A. L. Lee; Secretary, G. G. Gordon; Treasurer, S. B. Norris; Executive Committee, R. C. McCormick, chairman, Chas. Zeigler, R. E. Dowd, Adolph Hartung, A. C. Kelly; Valedictorian, C. A. Meyer; Poet, F. Thometz; Artist, F. S. Meade; Prophet, J. C. Lalor; Chaplain, F. F. Dornblaser; Editor, L. H. Novak; Assistant Editor, R. B. Essick; Historian, E. R. Hayhurst; Sergeant-at-Arms, C. A. Durkee; Assistant Sergeant-at-Arms, C. Skwor.

The election was not an easy matter in any way and occupied over eight hours. All offices were contested except those of treasurer and assistant sergeant-at arms. The latter was filled by a man who had shown his ability by filling a similar position the previous year.

Mr. McCabe is to be congratulated and thanked for the excellent way he conducted the election and in fact the manner in which he has led the class during the entire year.

Skwor was called up at mid-night following the election by one of the faculty who was anxious to get the election returns and could not communicate with the daily papers.

Larkin intended to take a trip to the fatherland but since his defeat in the election he has decided to take summer work. He believes that the ballot was stuffed when he was running for chaplain but so far he has not declared his intention of investigating the affair.

Mikkleson has been advising heroic doses of Nux vomica, telling a professor to give a tablespoonful of the extract of

Nux vomica. His pet name of "soft eye" may be replaced by "Nux."

Dr. Yarrows.—"What would you do with a patient during the second stage of labor?"

Schuessler.—"I'd put him to bed."

Dr. Humiston.—"what muscle unites with the internal oblique to join the conjoined tendon?"

Schmidt.—(in low voice) "Pyramidalis."

Dr. Humiston.—"Yes the transversalist."

Hayhurst is advised to study his books and ask fewer questions in obstetric class.

John Lund has some very novel ideas on the opsonic index and it will be well to have him air his views on the subject.

Schneider has a fine bunch of whiskers. It is suggested that we call him "Tragus' from the resemblance to a goat's beard.

Tucker got five votes for chaplain because his neck would not fit a Roman collar.

Since the introduction of new methods of transportation we can all take a trip to Rogers Park and take lessons in politics.

Schroeder has become unpopular with the ladies since the late election, but he has some redeeming features and may regain a favorable position with the fair sex.

The following are members of the Lemon Club: Biwer, Berger, Brinkerhoff, Fugina, Evans, Wood, Tucker, Freitag, Gerety, Huchinson, Spear, Pearce, Stawicki, Conroy, Schuessler, Reese, Dornblaser, Larkin, Berry, Marion, Lee, Ishmael, Clark, Christopher and Noger, the city boy.

SOPHOMORE NOTES.

The election of president of the class of '09 for the ensuing year, on May 8, was one of the hair-raising variety. Mr. Ely and Rose were the opposing candidates.

For several weeks preceeding the election both candidates were quietly gathering their forces and so equally popular were the men that the outcome was a matter of mere opinion. Upon the first ballot there were eighty-two votes cast resulting in a tie. As there were, by count, but eighty-one voters present the matter received quite a little discussion but ended in a motion being carried for another ballot. The vote this time resulted in thirty-nine for Mr. Ely to forty-two for Mr. Rose.

Dr. Irish.—"Mr. Byres is formaldehyde ever used internally?"

Saum is taking the rest cure.

Armstrong is still dissatisfied.

George Washington Post had tonsorial duties inflicted lately upon his ciliated dome.

Alfonzo Vincent King is on the water wagon.

Ellison paid the school several pleasant visits during the last month.

The balmy days of spring are here,
Old sluggish blood moves through our veins.
The Sophmore thins his down with beer,
Albeit learnedness he gains.

He dreams of some sweet female face,
Left as he thinks to pine for him.
And, while he doth for knowledge chase,
She cabbages the butcher Jim.

FRESHMEN NOTES.

The Freshman year for us is now a thing of the past. The administration under the guidance of William J. Siegler is without fault; he has performed his duty with integrity and without partiality; at the same time he has retained the good will of the class. We are now Sophomores but, as we leave the Freshman year, we can look back with pride, and regret no steps that have been taken. We feel that we can stand face to face with our upper class men and say, "We have done our part, we have taken your jokes in good cheer; in athletics we have given our best support and at the same time have treated and been treated as gentlemen." We now turn to the preparation for the oncoming Freshmen, and brethren, if we go to prepare for you, we will return again and teach you the game; that what we know you may know also.

On April 25 the class selected the men to steer us through the sophomore year:

President—Howard R. Sword.
Vice President—Sidney A. Smith.
Secretary—Charles P. McGarry.
Treasurer—Lee W. Cary.
Editor—William G. Epstein.

Sword is a man who is sober and conscientious, and with the assistance of Smith we have no doubt but that all questions will be given a careful consideration.

McGarry, through his close association with Miss Farbar, has become quite familiar with the books, and all records will be in safe keeping.

Cary has handled "all kinds of money," and there is no doubt but the purse strings will be guarded as though they were binding gold.

The literary ability of Epstein is unquestionable, and we will look with interest to the news that will flow from his pen.

With this issue the editor of the Freshman class of 1907 surrenders the quill to his able successor, who will fill the space allotted to the Sophomore class with items of more interest than those of the present year. The present editor expects to seek safety and repose; by the time you receive this he will be in some secluded spot where he may lie down in green pastures beside the cool stream and peacefully rest in the arms of morpheus, where dreams of tar and feathers, ropes, rails and electric chairs may not enter in and disturb his slumbers, and where visions of "roasted freshies" with sand bags crouching behind doors and lockers may not greet him on his awakening. After all it is with no little grief that the present incumbent of the class editorship tears himself away, but there is always a parting of the ways sooner or later. For the honor of the appointment, the free criticism and cheerful acceptance of fate from the victims published, the few invectives and much roasting, kindly accept thanks.

SCHOOL OF DENTISTRY

DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

EDITORIAL COMMITTEE.

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BATAVIA, ILL., MAY 20th, 1907.

DENTAL PATHOLOGY.

BY GEORGE W. COOK, B. S., D. D. S., Chicago.

Dean of Dental Department University of Illinois; Professor of Bacteriology and Pathology, University of Illinois; Professor of Oral Surgery, Dearborn Medical College.

In dealing with the problem of infection and infectious conditions that are common in the animal kingdom, especially in that specie of the animal kingdom known as man, we have a number of phenomena that are peculiar only to the human race. Infection of the human body is said to be, by some of the best authorities, a condition in which a foreign agent, in the form of a parasitic life, successfully enters the tissues of the body. This does not include the parasites of a bacterial nature that have their existence largely in the oral cavity or digestive tract. There are in fact a number of external openings of the body in which certain forms of bacterial life may quite constantly inhabit these cavities without producing a diseased condition. But if at any time any one of these organisms enter into the tissues or establish through their processes a substance that is absorbable into the tissues and establish a functional change of a part, or possibly the whole of the body, we can then say they are disease producing; although many times under certain circumstances they may be classed as non-pathogenic in their general characteristics, so far as their ability to enter tissues and produce changes detrimental to the normal functional activity.

We have previously pointed out the part played in metabolic processes of the anabolic and kætabolic changes that are constantly going on in the tissues and cells of the body. When anything interferes for a sufficient length of time to produce changes in the function of the body, we then have a disturbed condition which may be classed under the head of disease. For instance, when a disturbance in the cellular processes associated with oxygen absorption and carbon dioxide excretion sometimes takes place, we then have established an interference with cell respiration in which the exchanging of gases is unequal. Therefore we have a disturbance that may bring about pathological changes in the tissues and cells of the body. If we do not have under these circumstances fully established morbid conditions of the tissues and cells we have them rendered in a predisposing condition, whereby it is possible for certain parasitic forms of life to more easily enter the body and create a purely infectious condition.

There is a condition known as asphyxia which is an insufficient oxidation, and is recognized by the occurrence of carbon dioxide poisoning. When an excess of oxygen is introduced into the body it accelerates cellular energy, which causes rapid oxidation and thus produces an over activity of the part. Such a condition locally may result in an overgrowth of certain cells and tissues, and in this way produce the well known pathological appearance of hypertrophied tissue, or it might produce death to the cells and in this way bring about necrosis. Asphyxiation or suffocation is insufficient oxidation and poisoning produced by carbon dioxide. It is so well known that an animal cannot live without oxygen that it needs no discussion here. On the other hand it is so well recognized that an animal cannot live in an atmorphere of carbon dioxogen, that a discussion of that phase at this time would be of no use. When the lowest form of animal is placed in an atmosphere of carbon dioxide it very quickly succumbs and soon dies.

The respiratory action of the animal kingdom is sometimes depressed and sometimes increased. When the respirations are accelerated we have a condition called dyspnea. This condition is oftentimes due to some pathological changes in the heart and lungs. and for some mechanical reason the blood becomes charged with carbon dioxide. The quantity of poison may only be sufficient to stimulate the respiratory centers of the brain, and in this way call into action certain accessory muscles of respiration; the blood is not properly oxygenated and then ensues an appearance of blueness of the skin, especially of the face, lips and finger tips—thus we say the individual a cyanotic.

We have an opposite condition to the one just described which is a forceful inspiration of an excess of oxygen accumulating in the blood. This, however, in most cases is reflex and does not depend so much upon the oxygen alone as when nitrogen and hydrogen are inhaled under the same condition. The term applied to this condition is apnea. As we have just said, this condition is different from the one described, in that it fits the responsibility of respiration on the accumulation of too much oxygen, and there may be brought about a rise of temperature. This brings us to an important phase of pathological conditions whereby the temperature of the body is increased.

Fever is a term whereby the clinical aspect of certain processes of the body may be characterized as pathological. An increased temperature always causes acceleration of oxygen combustion in the animal organism, and is alluded to by a term known as pyrexia. This condition is differentiated from the one known as hyperthermic. The last named term is applied to certain nervous lesions whereby the temperature is increased beyond that usually recognized as fever, but there is little obstructive oxidation of the tissues.

In fever there may be two etiological factors for the cause of a rise of temperature, traumatism and infection.

The real cause of a rise of temperature in traumatism has never been very well explained. Infectious fever must depend upon a micro-organism successfully entering the body and producing some changes, either by the irritated action of micro-organisms or their products. It has been found that the temperature is readily increased by certain parasites that belong both to the vegetable and animal kingdom. Malarial fever is one that is usually produced by the presense of an animal parasite, which is called hæmameba, while such fevers as typhoid, pneumonia and tubercular are produced by bacteria. In the majority of cases of infection the rise of temperature is due to some toxic disturbance of the nerve centers, which are concerned to a more or less degree in the heat regulations of the body. Those conditions in which the toxines have a specific affinity for the thermic centers usually manifest themselves by a very high temperature. It has been found that by injections of peptones and albuminose into the fluids of the body it is possible to produce fevers.

The mechanism of fever is a complex process. The occurrence of fever seems to depend upon the irritation of the heat apparatus of the body. The rise of temperature may be very slight or it may be of such an elevated nature as to produce alarming symptoms.

There are certain characteristic changes that arise from an increased temperature that it is sometimes very difficult to know whether or not the change of tissue is the result of the fever, or whether they are the phenomena that occur with the conditions that produce the fever. There is one observation that has been quite clearly brought out and that is that combustion, or the interchanging of gases or cell respiration, which it really should be called, is a phenomena that is not by any means well undersood.

In fever we have shown that the erthrocytes are very rapidly destroyed. Some authors believe that hemolysis is the principal feature of fever. The urine is usually dark, the color being due largely from the pigment liberated from the red blood corpuscles. Alkalinity of the blood is usually diminished. Minkowski found, experimentally, on dogs that in a rise of temperature he was able to extract lactic acid from the blood, and that the alkalinity of the blood was in proportion relative to the degrees of fever. Leucocytosis is present in fever and the fibrin of the blood is increased, and the parenchyma cells are found in certain organs in a state of cloudy swelling. In long continued fevers the heart and voluntary muscles show degenerative changes, and the striation of muscular fibres are completely lost; they break down into a homogeneous mass and rapidly disappear. Fatty degeneration of the heart muscles is also one of the results of fever. All the functions of the body are disturbed. The cardiac action sometimes may be so rapid as to make it quite impossible to count the pulse.

In such infection as scarlet fever there is usually a rapid pulse, but in typhoid fever there is a slow pulse. The blood pressure varies according to the excitation of the vasomotor system. The respirations are also increased and may be shallow and deep, depending somewhat upon the location and extent of the disease. The glandular tissue is in the majority of instances changed in its functional activity, and the excreting glands are usually diminished in quantity of the products excreted. The gastric juice is said to be reduced in quantity, and the acidity is lessened very materially. The salivary glands are usually scanty in quantity and of a ropy, sticky consistency. The liver is usually in a swollen state and cloudy in general appearance, and the bile is diminished in quantity. When the bile and intestinal secretion are arrested in quantity, which is nearly always the case in fevers, constipation is the result. Therefore in alveolar abscesses of an acute and severe nature, a cathartic should always be administered.

In the majority of infectious fevers the skin is hot and dry, and when the temperature has about reached its climax perspiration may be abundant for some little time. This is usually spoken of as the crisis in fever. The urine is scanty and has a high specific gravity; it is dark in color and many times contains traces of albumin, and petassium salts are usually increased with the deminished quantity of chlorides. The sulphates are many times increased in quantity.

The secretion of milk is usually diminished both in quantity and quality, and it often happens that a nursing child is affected when the mother is suffering from some febrile disturbances. The nervous system is many times affected, which is indicated by headaches, pain in the back and extremities. Sometimes a patient suffers with considerable nervous disturbance. The secretions are very much disturbed and many times shows exactly what is going on in the tissues of the body during fever. There is an increased quantity of oxygen; this establishes exhiliration of exchanging of gases, which may be quite rapid in the early stages of the fever, with a diminished activity as the fever progresses.

All of the conditions herein described may be present in alveolar abscesses and many of the infectious conditions of the oral cavity. During all the processes of acute infectious diseases a disturbed secretion of the salivary glands and the musous follicles of the oral mucous membrane may all be so changed, qualitatively and quantitatively, that it brings about a favorable condition whereby certain tissue changes may occur around the gum margin in the interproximal spaces. Owing to the changes of the secretions this will bring about a favorable environment of bacteria, and in this way be the initial disturbance for certain inflammatory processes to be established in the localities just mentioned; there causing disintegration of tooth substance and inflammation in the gum tissue.

These acute infectious diseases may be the direct or indirect causes of erosion of the teeth, caries of teeth and inflammation of the gingivæ and peridental membrane. These may follow late in life as the direct result of diseases of early childhood. The acute febrile diseases occurring in childhood during the formation of the teeth and jaws manifest themselves in mal-formed tooth structure, or anatomical derangement of the teeth and jaws later in life.

(To be continued.)

ILLINOIS STATE BOARD OF DENTAL EXAMINERS

The next regular meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Illinois will be held in Chicago, at the Northwestern University Dental School, southeast corner of Lake and Dearborn streets, beginning Monday, June 3, 1907, at 9 a. m.

Applicants must be in possession of the following requirements in order to be eligible to take the examination: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school, or dental department of a reputable university; or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualificotions prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee is twenty ($20) dollars with an additional fee of five ($5) for a license.

Address all communications to

J. G. Reid, D. D. S., Secretary,
1204 Trude Building, 67 Wabash Ave., Chicago.

SOLUTION FOR ETCHING PORCELAIN INLAYS.

Porcelain inlay workers usually undercut their inlays with a diamond disk, but for those who prefer to etch the back of the filligns with hydrofluoric acid the solution of hydrofluoric acid called "white acid" is valuable. Hydrofluoric acid makes a smooth etch. White acid makes a frosted etch. It can be bought under the name of white acid, but is much more efficient if freshly prepared and kept free from the air, as it has the property of absorbing moisture, which destroys its good qualities. It is prepared as follows: Make a saturated solution of ammonium carbonate in hydrofluoric acid, using a lead dish; evaporate to one-half its bulk. Add hydrofluoric acid up to original bulk and evaporate again to one half its bulk. This solution should be kept in a gutta percha bottle. It will give a surface to the filling to which the cement will tightly adhere.—*Dr. Jos. Head, Dental Cosmos.*

TREATING FOR ALVEOLAR ABSCESS.

I believe it is a mistake to carry a tooth along through weeks and weeks of treatment through the pulp chamber, and many of us make a mistake in treating teeth too often. Whenever an abscess forms about a root it nearly always surrounds the apex of the root. It destroys the peridental membrane around the sides of the root, consequently treatment through the root canal does not get at what we want, and after pus has been present some time, if the surface of the root has been bathed in pus for many weeks, we will get satisfactory results from treatment through the pulp chamber in very few cases. I do not practice immediate root filling in such cases, but I have done it "more immediately" than is the general custom. In such cases I prefer to fill the root canal, and, if necessary, make an opening through the alveolar process.—Arthur D. Black.

DON'T BE ODD.

If other people, whose incomes are no greater than your own, were not already subrcribers to our service there might be some reason why you should not have a telephone in your home.—Chicago Telephone Co.

SCHOOL OF PHARMACY.

OF THE UNIVERSITY OF ILLINOIS.

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CLASS EDITOR:
P. O. Martin, '07. W. D. Mottar, '08.

COMMENCEMENT EXERCISES.

The 47th annual commencement exercises of the University of Illinois School of Pharmacy were held in the Auditorium of the Young Mens' Christian Association on Thursday afternoon, April 25th. In spite of the inclement weather a large number of friends of the class and Alumni of the school assembled for the occasion.

Dean Goodman presided. The class speakers, Mr. Lotis L. Huston, salutatorian, and John P. Lee, valedictorian acquitted themselves very creditably.

The principal address was given by Mr. Leo Eliel, of South Bend, Ind., who is one of the best known pharmacists in this country, and president of the American Pharmaceutical Association. Mr. Eliel's address appears elsewhere in this number of the Plexus.

President James conferred the degree of Graduate in Pharmacy upon 30 candidates and certificates upon 15 others. After conferring the degree the president addressed the class briefly and referred to the fact that the alumni of the University of Illinois are now to be found in every state and every large city in the union and in very many of the

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*Class honors for excellence in scholarship.

smaller cities and towns. He spoke of the advantages enjoyed through this association and of the obligations which these advantages impose upon each alumnus. He encouraged the members of the class to continue their studies, to take an active interest in association work and strive to their utmost to be a credit to their Alma Mater and their chosen profession.

The presentation of prizes followed. The Alumni prize, a gold medal, offered for the best scholarship, was awarded to Mr. John P. Lee. The Biroth prize, consisting of a compound microscope and given for the best work in Materia Medica and Microscopy, was presented to Mr. Lotis L. Huston. The Becker prize, a cabinet for chemical apparatus and reagents, given for the best work in Pharmacy, was awarded to Mr. George Eisele.

Memberships the American Pharmaceutical Association for excellent work in Pharmacy and in Pharmacognosy respectively were awarded to Mr. Walter H. Reuter and Mr. Karel B. Blahnik. The list of class follows:

RECEIVE THE DEGREE OF GRADUATE IN PHARMACY.

Andrew Bakkers, Chicago; Ernest Henry Behrensmeyer, Quincy; William John Beyermann, Chicago; Mark Dean Bickford, Sterling; *Karel Bartholomæ Blahnik, Chicago; Carl Gustave Carlson, Ludington. Mich.; Elmer Eldorado Cassin, Ogden, Utah; Joseph Herman Christman, Chicago; *George Eisele, Quincy; Robert Fielding Haines, Columbia Falls, Mont., Lotis Loma Huston, Maquoketa Iowa; Charl Fremont Kingery, Mendota; John Joseph Krzemieniewski, Chicago; *John Peter Lee, Chicago; Ira Willard Lindley, Central City, Neb.; Hugh McNair, Mt. Carmel; Paul Owen Martin, Effingham; George Clark May, Princeton, Ind.; *Max Mendelssohn, Chicago; Jesse Earl Miles, Weldon; Arthur James Nelson, Burlington, Iowa; *Walter Henry Reuter, Union, Oregon; Fred Emil Schinz, La Salle; George Louis Secord, Chicago; George Keith Thomson, Fort Collins, Colo.; Charles Ray Yundt, Mulberry, Ind.; Edward Charles Wach, Chicago; Garrett James O'Neill (class of '05), Evanston, Wyo.: Frances Ellsworth Wells (class of '05), Chicago; Edward De Stefano (class of '06), Chicago.

Receive a certificate of having finished the course successfully. Will receive the degree when the required age and practical experience are attained:

Karl Elliott Anderson, Menomonie, Wis.; Frank Edmund Blake, Watseka; Floyd Falconer Bunch, Clifton Forge, Va.; Dee Earl Ellsworth, Chicago, Tisdale E. P. Furman, Chicago; Jacob Goodman, Chicago; Howell Johnston, Charleston; George Julius Langheim, Charlotte, Iowa; Frank John McCabe, Chicago; Henry Pfaff, Jr., Chicago; Andrew Vern Plummer, Fennville, Mich.; Bertha Reisman, Chicago; Frederick Henry Ruicker, Chicago; Edwin Theodore Schumm, Laport, Ind.; Jesse F. N. Buerkett, Springfield.

THE ALUMNI BANQUET.

The annual banquet extended by the Alumni Association to the graduating class was given on Thursday evening, April 25th, at the Hamilton Club. The attendance was unusually large, and many of the alumni came considerable distances to be present.

When the assembled guests had done full justice to the menu, President A. W. Baer, introduced the toastmaster, Dr. H. H. Rogers, who presided in his usual happy vein. In the absence of Dr. James, who had been called to Springfield on important business, President W. L. Abbott of the Board of Trustees responded to the toast "The University of Illinois," and spoke of the greatness of the University, its aims, and what it hopes to accomplish for its professional schools in Chicago. He was followed by Dr. Charles Davison, of the College of Medicine, who described in a humorous fashion what he would do if he could have his way in improving the practice and teaching of pharmacy.

President A. W. Baer responded to the toast "The Alumni Association," and welcomed the new members to the ranks, expressing the hope that they would actively participate in the work of the association and that this infusion of new blood would be most beneficial to the organization.

Professor Puckner responded for the faculty and said that he would follow the precedent set by the previous speakers and not confine himself to the subject of his toast. He discussed the future of pharmacy and qualifications which the successful pharmacist of the future must possess. His toast appears in full elsewhere in this number.

President Karl E. Anderson, of the class of 1907, spoke for the class, and Mr. H. A. Antram delighted every one and was compelled to give an encore of his recitations.

It was nearly midnight when the function closed. The alumni are to be congratulated upon the most successful banquet and reception they have yet given.

ALUMNI NOTES.

Curl F. Mick, '03, has purchased a pharmacy in Ottawa, Ill.

Charles Howk, '02, has sold his drug store at 2200 State street, Chicago, to Bruehn & Freeman. Mr. Freeman is also a member of the class of '02.

Dr. Chas. A. Warhanik, '98, has removed to Seattle, Wash.

Dr. E. T. Olsen, '98, is assistant surgeon in the U. S. Marine Hospital, Chicago. Dr. M. H. Watters, '98, is also stationed at the same hospital.

Mr. John E. Klenze, '93, has been elected president of the Davenport Retail Druggists Association.

Mr. Arthur T. Schleder, '02, has taken a position with W. M. Benton, of Peoria.

Among the alumni from out of the city who were present at the commencement exercises and banquet were C. E. Tilton, '06, of Fairmount, Ill.; H. G. Carlson, '06, Moline, Ill.; Wilbur Grimes, '06, Ottawa, Ill.; Dr. F. Werner, '76, Watertown, Wis.; H. M. Ehrlicher, 82, Pekin, Ill.; E. A. Horn, '82, Oshkosh, Wis., and L. C. Staudt, '82, Aurora, Ill.

The members of the class of '82 celebrated the silver anniversary of their graduation by a supper held on the evening of April 24th at which twelve members of the class were present.

CLASS NOTES.

The students visited the laboratories of Parke, Davis & Co., Detroit, leaving Chicago on the evening of April 18th and remaining in Detroit all the next day.

Every courtesy was extended by the firm, and the excursionists felt exceedingly well-repaid for their visit. It is a rare treat to be afforded an opportunity to see the manufacture of pharmaceuticals on such a large scale. While some members of the class could not but help remark that the machine seemed likely to replace and make unnecessary much of the pharmacist's skill and the dexterity acquired only by years of practice, yet the general feeling was that here, as elsewhere, changed conditions resulting from new inventions and ideas would finally make for the improvement of pharmacy itself and ultimately elevate its status among the professions.

In all about 70 students took part in the excursion and quite a number remained over for another day to visit Canada and to inspect other pharmaceutical industries in Detroit.

AMERICAN PHARMACEUTICAL ASSOCIATION.

Address to pharmaceutical graduates, by Leo Eliel, South Bend, Ind., President American Pharmaceutical Association. Delivered at the 47th commencement exercises of the University of Illinois School of Pharmacy, April 25, 1907.

"You are about to go out into the world and put into actual practice the many things you have been taught in this institution.

"And I feel that your instruction has been good and your training in the right direction. But let me admonish you right here, in all seriousness, that it will be a great error on your part, if you should consider the granting of your diploma and the passing of the state board examination, as the finishing touches to your pharmaceutical education. That which you have been taught here is but the foundation upon which that greater and better knowledge, which comes only from observation, practical experience and application may be built. Success in any branch of human endeavor, comes only to those who strive for it earnestly and conscientiously along well recognized paths. Your success in your chosen profession depends entirely upon the uses to which you will apply that which you have been taught here. Upon leaving this institution of learning it would seem to me that your first thought would or rather should be: how can I keep abreast of the times and in touch with the things in my chosen vocation? What is best for me? How can I best do this? Let me answer this question for you.

"About 55 years ago, a few wise men met in an eastern city to discuss the best method of procedure to bring about better conditions in the drug markets of this country. For there was much complaint even in those good old days regarding the quality of the drugs imported to this country. The conclusion arrived at was that nothing could be accomplished except by organization. This was affected at the time and from this small beginning, there has grown a magnificent association, covering every section of the United States, its insular possessions and British North America, having for its object always the education and uplifting of the profession of pharmacy, the dissemination of knowledge and the promotion of everything that would better conditions of pharmaceutical practice. The 'Pure Foods and Drugs Act'.on the national statutes, is largely due to its influence. I refer to the *American Pharmaceutical Association.*

"And I wish to impress on you that in this association above all others, you will find those things which you will need and which will help you in your further progress onward and upward in your chosen vocation. Its publications which are furnished to its members will keep you informed on all progress in matters of pharmaceutical import. Membership in this association will put you in touch with the writers of the text-books, the instructors in pharmacy, as well as the best element of those engaged in the practice of pharmacy. You need what it offers you and it needs you to aid it in continuing its great work. Join it. Do not delay in doing so, and whenever it is possible attend its meetings which will prove a source of great profit and pleasure to you. I cannot too strongly impress upon you what membership in this association may mean to you in the career you are about to enter upon.

A RETROSPECT.

"It is hardly to be expected that you fully realize the great advantages you have enjoyed in the instruction you have received. Here you have had the benefit of all the accumulated experience, knowledge and discoveries relating to pharmacy and chemistry up to this time. Pharmacy and chemistry are progressive sciences. It will require some comparisons with conditions as I first knew them to fully impress this upon you. When in 1862 I first started to serve my apprenticeship, Ether and Chloroform had but just come into use, and many physicians were opposed to their use. Of the many active drug-principles, Quinine, Morphine, Atropine, Salicin and Bebeerine were about all in use, at least in that section of the country. The only antiseptic in use was Phenol, or rather Carbolic Acid as it was then called. The fluid extracts were just being talked about. Most of the galenical preparations sold or dispensed were in liquid form, chiefly tinctures, honeys, (confections), decoctions, infusions, etc. We made many pills, coated them when so wanted, using sugar, silver or gold leaf. The only ready-made pills were the proprietary ones. Plasters we spread ourselves, making our plaster masses, the only ready-made plasters were also proprietary. We also made some of our chemicals, such as Mercury Bin-iodide and Proto-iodide, Potassium acetate, Mercury and Chalk, Blue Mass and Mercurial Ointment. We gathered such plant-drugs as were indigenous to that section, sliced, dried and pounded them into shape for use. So you may readily see that there has been quite an evolution in methods of preparing and dispensing of medicinal substances. This evolution is continuous and progressive, and it is your duty to keep yourselves in touch with progress along these lines.

And it is for this reason that I urge you to join the American Pharmaceutical Association.

A PROSPECT.

"In closing permit me to illustrate a thought by a brief description of a series of pictures I once saw many years ago.

"The first picture: In the foreground a great orchard, where there were many different varieties of fruits, the trees all well laden, there were also many bubbling springs of purest water. Beyond these were fields of waving grains, level and well beaten paths leading in every direction. And in looking over the picture we see many young men and women gathering of the fruits and grains and quenching their thirst at the springs. From the farther end of this place, a broad and level roadway led out into the world beyond, in the dim distance a range of mountains was faintly outlined. The road leading out into the world beyond was crowded with young men and women marching along with even steps and in serried ranks.

"The second picture: The road not so broad nor quite so smooth, the ground somewhat broken and hilly, the great crowd we saw marching with even steps and in serried ranks in the first picture, much smaller, and the order of march not kept up. Looking in the foreground we see many little hills and mounds, each occupied by some of those we saw marching in the first picture. And strange to say they were content to remain and rest there. In the background we see the road narrowing and becoming steep and rugged. The mountains so dimly seen in the first picture, now in plain view, showing their rugged and difficult peaks, of which one, loftier and most difficult stood out in bold relief.

"The third picture: In the foreground the road rough and difficult, the great crowd dwindled to a few, struggling bravely on the road leading to the lofty peak now so plainly to be seen. The road now a mere path, difficultly to be distinguished in places, in others entirely obliterated if it ever existed. Looking closer, we see directly in the pathway yawning depths and steep and slippery heights directly in the pathway. These obstacles seem impossible. Looking closer we see of the great crowd a few struggling, doing their best, but forced to finally surrender and rest on their peaks, but no; there is one, who with overpowering strength and will-power overcomes one by one all obstacles and reaching the topmost pinnacle of this mighty peak, stands out in bold relief the admiration of all the world.

"May I not express the hope that among you there may be one, who by his efforts will reach that exalted position which spells "undying fame," and thus add luster not only to himself, but also to your Alma Mater and your classmates."

THE FUTURE OF PHARMACY.*

By W. A. Puckner.

The future of pharmacy. Is pharmacy now, or is pharmacy going to be a business, a trade or a learned profession? Must the successful pharmacist, now or in the future, possess the essential qualifications of the business man as must the grocer and the dry goods dealer? Is his advance dependent on his skill or proficiency in his handicraft or trade as is that of the painter, the carpenter, or the bricklayer, or may he be compared with those who follow the learned professions of medicine or law, and will his success depend on his scholarly attainments? Or, to put it more directly, will his success depend on his ability of selling goods, figuring discounts and balancing accounts, or on his skill in making pills that are round, emulsions that will not crack and ointments that are smooth, or on his grasp of chemistry and kindred sciences whereby he is enabled to discern and correct prescription incompatibilities, to aid and advise the physician in prescribing remedies and protect and instruct the public?

My answer is that a successful pharmacist must combine all three. This is true of all pursuits in life, but particularly so of pharmacy. Those who practice pharmacy must be business men. In these strenuous days all must adopt business methods. Be he carpenter, tailor, physician or lawyer, the future has little in store for him unless he uses his abilities and opportunities in a business-like way. That the pharmacist must understand his trade or profession goes without saying, this is the only thing that distinguishes him from those in charge of the patent medicine counters in the Boston store from dealers in notions or candy, and from other small tradesmen.

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*In response to a toast at the banquet of the Alumni Association of the University of Illinois School of Pharmacy.

Pharmacy a Learned Profession. But is pharmacy to remain, or as some would put it, is pharmacy to become, a learned profession? Most decidedly, yes! By its efforts in this direction only can pharmacy secure the good will and the respect of the medical profession, which depends on pharmacy for help, and of the people whom pharmacy must protect.

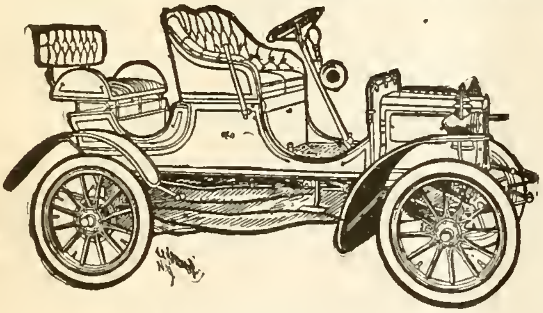
And it seems to me that now or never is the time when pharmacy must assert its claim to be considered a learned profession. The enactment of the pure food and drugs act has caused the people to realize the need of educated pharmacists. Legislation, proposed or passed, in nearly every state in the union, has emphasized this further. Physicians have at last realized the importance of the pharmacist. As secretary to the Council on Pharmacy and Chemistry of the American Medical Association, it has been my good fortune during the past year to come in close touch with the medical profession, and I have been surprised to learn how keenly the physicians feel the extent to which medicine is dependent on pharmacy. The crucial time has arrived; let the pharmacist occupy, before the physician and especially before the public, the position to which he is entitled.

The Pharmacist and the Public. While as a matter of policy you must continue to sell postage stamps (and "put 'em on, please," if she is young and good looking), to telephone to husband's office to please stop at the Fair on the way home and get a pint of alcohol and some insect powder, and in other ways be a general accommodation agent—a Madchen für alles. But, at least do not justify them in their low estimate of your duties by discussing the relative merit of a pine-apple sundæ and an apple-jack Friday. Instead try to show them that in a measure you are the guardian of public health. Discuss the effect of the weather on diseases, talk about prophylaxis or disinfection and incidentally sell an atomizer, a disinfectant or something of the sort.

Instead of asking your friends into the back room; dirty as usual, to sit in "on a game," instead of shaking dice for the cigars to show that you are a good fellow, talk to them, if entertain you must, about the professional side of your business, about public health, sanitation, etc. But above all, assert yourself in public affairs. To gain the respect and recognition of the people you must take a stand on questions of general public interest. Close confinement to business has given some justification for the claim that pharmacists are "small," and are interested only in their own advancement.

The Pharmacist and the Physician. By all means let your relations with physicians be professional. The patronage of the physician whom you call "Doc." and who expects you to supply him with medicine free of charge, and who fills his pockets with cigars while you are attending to his wants, is not worth having.

Instead of catering to this type of doctor—a small minority—attempt to gain the respect and confidence of the reputable physician. In this but little difficulty will be had if you can show that your opinion and advice in regard to the prescribing and compounding of medicines is reliable. Attempt to show that you bear to medicine the same relation that the ordinance department does to the army in the field, that you are the handmaiden of medicine, and that your chief effort is not the sale of fake medicines or "something just as good."



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THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT OF THE
UNIVERSITY OF ILLINOIS.
CHICAGO.

VOL XIII. BATAVIAA, JUNE 20th, 1906. NO. 6

THE COMMENCEMENT.

The Twenty-fifth Annual Commencement of the College of Physicians and Surgeons was held at Studebaker Hall, Tuesday, June 4th, at 2 o'clock, in the presence of a large gathering of relatives and friends of the members of the graduating class. The exercises were opened with the invocation by Rev. Morton Culver Hartzell.

After a musical selection, Rev. Rufus A. White delivered the Doctorate Address and Charge to the class. Dr. White spoke at length, and earnestly besought the members of the class to remember always the sacredness of their calling, pointed out an ideal, and dwelt on the relations of physicians to their patients and to each other.

The PLEXUS regrets its inability to give the text of Dr. White's address.

Next on the program was the presentation of the graduating class to the president of the University by Dean Wm. E. Quine, followed immediately by the conferring of degrees by President James, of the University of Illinois.

The last number on the program was the Class Valedictory, by Edward Thurer, whose effort was greatly appreciated by those present, and is given in full below.

The exercises closed with a Benediction, by Rev. Hartzell.

The program follows:

PROGRAM.

Invocation............................ Rev. Morton Culver Hartzell, D. D.
Overture--"Commencement" ....*Tobani*
Doctorate Address and Charge to the Class....Rev. Rufus A. White,D.D.
Reverie—"Roses Honeymoon"..............................*J. W. Bratton*

Presentation of the Graduating Class to the
President of the University.
Dean Wm. E. Quine, M. D. LL., D.

Conferring of degrees.....President Edmund Janes James, Ph. D., LL. D.
Potpourri—"Tattooed Man"....................................*Victor Herbert*
Class Valedictory..............................Edward W. Thurer, B. L.
"Time Place and the Girl"....................................*Howard*
Benediction............................ Rev. Morton Culver Hartzell, D. D.

De Fosse's Orchestra.

HOSPITAL APPOINTMENTS 1907.

Cook County Hospital William Bryne Dougherty, Herman Buchanan Kingsbury, Betty A. Nilsson, Nelson Chancellor Phillips, Clara Pauline Seipple, Hiram J. Smith.

West Side Hospital. John Edward Clark, William Henry Conser, George John Mautz, James Edward Earle Nelles, George Nathan Wassom.

Augustana Hospital. Fred Robert Disney, Hans Schiffbauer, Edward Walter Thuerer, B. L.

St. Mary's Hospital. Robert Rochester Hansen, George Mortimer Smith.

Dunning Hospital. Earl Bowen Jewell.

Alexian Brothers' Hospital. Oscar B. Funkhouser.

St. Anne's Hospital. Eric Kline Bartholomew, Ph. G., Hilerd Enno Jenkins, Charles Segal.

Lakeside Hospital. Mott Hunton Arnold, Robert Herman Buck, D. D. S., Jay Thomas Wood.

St. Elizabeth's Hospital. Arthur Leopold Forster, Thomas Jerome Henneberry.

St. Bernard's Hotel Dieu. William Parker Gunn, John Joseph Toeller.

Grace Hospital. Cameron Alfred Rose.

Oak Park Hospital. Arthur Simon Bachmann, Phillip Leicht.

Illinois Hospital for the Insane, Elgin. Charles Anson Ballard, Charles Oliver Bulger, Fred B. Clarke.

Polyclinic Hospital. Eli Nathan Stenn.

St. Anthony's Hospital. Robert Rochester Hansen, James B. McGuire.

Washington Park Hospital. Frank Godfried Andreen, A. B.

Illinois Eye and Ear Infirmary. Oscar Boone Edmonson, B. S., Willis Elmer Keith.

Lake View Hospital. M. Charles Hecht.
Chicago Baptist Hospital. Charles Newton Allison.
Garfield Park Hospital. Clavin Edgar Brown, M. D.
Evangelical Deaconess Hospital. Otto Albert Gahl.
North Chicago Hospital. Myron Sherper.
Chicago Hospital. Charles Larkin Conroy, M. D.
German Hospital. Jacob Frank Friesen, Ph. C., M. D.
Engelwood Hospital. Ross Huston.
Woman's Hospital. Esther Alice Hart.
Michael Reese Hospital. George Luther Davenport.
Tabitha Norwegian Hospital. Chester John Challenger, M. D.
New England Hospital, Boston, Mass. Elizabeth Browning Ball, Martha Marilla Crofut.
St. Joseph's Hospital, Joliet, Ill. Bertram Arthur Richardson.
Good Samaritan Hospital, Portland, Ore. Jesse Ettelson.

CLASS VALEDICTORY.

BY EDWARD W. THUERER, '07.

The history of surgery is as old as the human race itself. The mind in endeavoring to review this subject goes back to pre-historic times in the valley of the Nile, where it is known that the ancient Egyptians trephined the skull for headache, insanity and epilepsy. In 5421 B. C. a curious treatise on anatomy was in existence. Fractures, dislocations, tumors, calculus of the the bladder and hernia were described, and at the time of the Pyramid builders an official system of medicine was in process of construction. From Egypt we are carried to Greece, and learn in the poems of Homer about the distinguished physician, Aesculapius, and his sons who were valiant soldiers and able surgeons. Again we think of the rise and growth of the schools or temples of the Aesclepiadæ, remembering that at the temple of Cos, in 460 B. C., was born the Father of Medicine and Surgery, the immortal Hippocrates. Our imagination next pictures the Greek city in Egypt, Alexandria, a mecca for students of the healing art, where magnificent strides in the knowledge of anatomy were made.

We must needs pause to recall that these were times of turmoil in the lives of men. The Roman Republic had arisen only to be transformed into an Empire. The beauty and magnificence of Greece had crumbled, and with it the temples of the Aesclepiadæ. Ambitious men had lived and died; nations had risen and fallen; Christianity had been born and was gradually becoming stronger and stronger.

Our attention is next arrested by the life and work of Claudius Galen, born A. D. 131. A Greecian by birth, but attracted by the magnetism of Rome, was a true scientist and an honest practitioner in a time of corruption, when science had almost ceased to exist, commercialism and quackery ruled, and the Hippocratic oath was a dead letter. He was our first great physiologist, and the important facts which he discovered were destined to lie dormant under the dust of fifteen centuries.

The vast expanse of the Middle Ages, which now cloud the picture, was a period during which surgery was reduced to a mere craft, degrading to the dignity of the priest and monks who were now the physicians. In the standard of importance the soldier stood first and the surgeon was among the very lowest ranks of society. The desire to be a great soldier filled the heart with youth. Conquest and military glory stirred the souls of men. No science but that of warfare was entertained by them. The surgery of the time, such as it was, was done by the barber surgeon, the travelling "Incisor" or "Cutter" of the stone, charlatans, mountebanks, and even executioners performed the work. Only one ray of light pierced this darkness. The Mohammedans who had captured Alexandria, inherited the learning of the Greeks. While they added little to the knowledge of the ancient masters, they did much to reorganize and systematize for benefit of future generations the fragmentary work which they had collected.

With the Renaissance in the sixteenth century came Vesalius, the anatomist, and Ambrose Pare, the surgeon. Vesalius believing only what he saw, proved that much of the teaching of the ancients was erroneous. The legacies which Pare left were the simple treatment of wounds, and the ligature of arteries in amputations. While these men mark an epoch in the history of surgery, the general condition of the art remained as degraded as ever for nearly three hundred years. The clouds were still dark.

In a brief review we find little of interest in the Seventeenth Century. But in the Eighteenth Century we are struck by the galaxy of men in Paris and also in Holland, while in England we find the true scientist—the prophet of the age—John Hunter. We must note, too, the disappearance of the barber surgeon, the establishment of hospitals, and the founding of medical schools with liberal facilities for study. Old operations were perfected, and new ones were devised. New instruments come into use. Methods were improved. Surgeons were better educated. Yet surgery was still in its infancy, and stupendious changes must be brought about to make the art much better than it had been in the time of Hippocrates.

The Nineteenth Century had in store discoveries which were to revolutionize the conditions and lives of men. What steam and electricity, and the various ways in which man has harnessed them to suit his needs have wrought in the commercial and social world, so the establishment of more modern medical schools and laboratories, discovery of general anæsthesia, and greater still, the work of Pasteur and Lister have brough about marvelous changes in the study and practice of medicine and surgery. They have lifted surgery from a degraded trade to a dignified profession.

"More progress in the art (of surgery) has been made since eighteen hundred than had been made in the two thousand years preceeding that date. The surgeons of those days were weak, indeed, and almost helpless as we look upon them today. What knew they of suppuration, pyemia, septicemia, erysipelas and tetanus as post operative complications, and more pitiful, how unsuccessfully they attempted to avoid them. They had no clinical thermometer, and the hypodermic syringe was unknown. The terrors of operative procedures without anæsthesia must have been barbarous to the patient, and repulsive and discouraging to the surgeon. They but vaguely realized the importance of blood saving, and the best means of accomplishing it were just beginning to dawn upon them. The treatment of ordinary wounds in a simple and sensible way, as well as the ligature of arteries, had just begun to be practiced. The use of the microscope in diagnosis had not been dreamed of, and they had never seen an ophthalmoscope.

Rapid advances were now destined to change the condition of affairs. Medical schools with laboratories and dissecting rooms were being established, as well as hospitals, which afforded abundant clinical and bedside teaching. The value of hospital training was coming to be realized more and more. These new methods of educating surgeons took a modern aspect, and the outgrowth of this activity was the formation of surgical societies and associations, the publication of surgical journals, and the cosmopolitan aspect given to the art by international communications. The sons of two new nations, the United States and Russia, had now entered the field. Remarkable advances were made in surgical pathology, both anatomical and experimental. The rapid growth of cities resulted in increased dêmands and opportunities for surgeons. The rise and development of specialties in orthöpædics, gynecology, opthalmology, othology, and dermatology, are potent factors and far reaching in their effects upon the development of surgery. But more significant than all these influences combined were the discovery of general anæsthesis in Ameria, and the announcement by Louis Pasteur in France of the role played by infinitesimal organisms in the production of fermentation and putrefaction, as well as the suggestion that they were probably the cause of contagious and infectious diseases, and the application of these principles to practical surgery by Joseph Lister in 1867.

Of what benefit were the numerous hospitals, medical schools, advanced methods of teaching, new operations and new instruments so long as the operating room was "A hell to the patients and a purgatory to operators," for want of anæsthesia; of what avail were they when patients died by the score because surgeons struggled blindly and ignorantly to avoid post-operative sepsis.

The first of these obstacles to surgical advancement was removed with the discovery of ether anæsthesia by Morton, and its announcement by John Collins Warren of Massachusetts, in 1846. This great revelation spread like wild-fire throughout the civilized world, and its use soon became universal. Chloroform anæsthesia was discovered a year later in Scotland. The shrieks and horrors of operative proceedures were now to become a thing of the past. Most sufferers who before would calmly await death rather than undergo the ordeal now gladly submitted to the painless surgical operation. The surgeon could now accomplish better results; he was more careful, more deliberate, and more thorough. The advantages of anaesthesia in diagnosis are obvious.

And yet the greatest problem was still to be solved The surgeon could now amputate, enter serous cavities, in fact preform any surgical operation without pain to the patient, but of what advantage was all this if the patient was to die of post-operative sepsis. Erysipelas, septicemia. pyemia, secondary hemorrhage and hospital gangrene were endemic in hospitals and in armies. In the Crimean war surgical diseases killed more men than shot and shell, the mortality was appalling. In some of the European hospitals whole wards or even entire institutions were closed in vain attempts to overcome these death-dealing conditions. The famous saying of Velpeau that "A pin prick is a door open to death" was only too true, for death from septic infection followed the slightest operation. Another French surgeon said to his pupils, "when amputation seems necessary think ten times about it, for too often when we decide upon an operation we sign the patient's death certificate." The mortality from puerperal sepsis was frightful, and like a monstrous demon it was destroying women in child-bed by the hundreds. Indeed it seemed as though a merciless fatalism had settled upon the profession. The mortality was as bad in private practice as in hospitals, for a state official in Paris believing the air in hospitals to be the fatal agent, hired an isolated house where ten women were sent in succession for ovariotomy. Interested neighbors watched the house and shortly saw ten coffins taken away. Operators knew nothing of aseptic surgical cleanliness. They thought nothing of going directly from the dissecting room to a laparotomy or labor case, without more than barely washing their hands. Old bed sheets, merely washed, were cut and used for dressing. A surgeon would wear the same old operating coat for years. Instruments would be carried from one operation to another without even being washed. The assistant carried ligatures in the button hole of his coat for the convenience of the operator. Pus dressings were handled thoughtlessly and carelessly. Even as late as the Franco-Prussian war, in 1870, death from surgical diseases caused horrifying mortality among the soldiers. "Pus seemed to germinate everywhere," said a student, "as if it had been sown by the surgeon." During the siege of Paris nearly every patient died who had been operated on, and in dispair, Nelaton said, that "He who should conquer purulent infection would deserve a golden statute." Others declare that they had tried everything, yet all in vain. But the man who deserves the golden statute had already appeared. Joseph Lister, in Scotland, had applied the theory of Pateur's experiments to practical surgery, and with marked success.

The classical experiments of Pasteur showing that fermentation was due to the action of micro-organisms overthrew the theory of Liebig who held that it is a "change in organic fluids and tissues set in motion by the access of oxygen or of bodies in a state of decomposition." His demonstrations put to rest for all time the theory of spontaneous generation. More important than this, however, was the effect of these experiments upon Joseph Lister.

It was in 1860 that Lister was first attracted by Pasteur's work, and at this time he began his bacteriologic researches in relation to antiseptic surgery. He believed that bacteria were brought to wounds by the air, but he was also aware of the fact that any foreign body coming in contact with the wound may also carry infection with it. Even before he introduced carbolic acid as an anti-septic he taught operators and assistants to exercise the utmost care in cleanliness, and he employed deodorant lotions. He regarded wound infection as putrefaction, but whatever the causative agents might be he knew that they were ever present, and he knew that a suitable antidote had to be found. He tried many substances, and finally found carbolic acid to be the most successful remedy. He observed that simple fractures healed without any disturbance, but that compound fractures were accompanied by a great local disturbance and a high mortality. He argued that the air carried the infection, and that compound fractures must first be cleaned with a carbolic acid swab, and then reduced to a simple fracture by excluding the air with a packing of lint soaked in carbolic acid solution. A block tin shield was applied over the dressing to prevent evaporation. The remarkable success of this treatment in compound fractures led to its use in all surgical lesions, to all septic processes, fresh wounds, amputations, excisions, in fact wherever the continuity of the skin was broken.

From this humble beginning the present protected methods have grown. New antiseptics have come and gone, the carbolic spray has long been abandoned, and today asepsis has supplanted antisepsis. The surgeon of today with sterilized instruments, dressings and sponges, soap and water, the hand brush, alcohol, and a few simple chemicals enters every nook and corner of the human body with impunity. "Daring has become conservatism; rashness has become common sense. The cranial cavity, the thorax, the abdomen, the brain, the lungs, the heart, the intestines, the joints, the ear, the eye, regions and organs which were sacred to the action of disease; which were inspected on the post-mortem table only, are now opened freely to the renovating measures of the surgeon and the gaze of every medical student." The magnitude of such a marvelous change appears almost as a brilliant miracle when we recall it is but a little over twenty-five years since Lister saw his methods adopted throughout the civilized world. What would be the amazement of the ancients, aye, the surgeon of the beginning of the nineteenth century should he be escorted into a modern well equipped operating room, or be conducted through a modern hospital. He would barely recognize his profession in the garments in which advanced science has bedecked her.

While Lister was perfecting his anti-septic methods, the great Pasteur was not idle. He was successfully working an antitoxine for chicken cholera, anthrox, and hydrophobia and he lived to see two of his pupils conquer diphtheria by the anti-toxine treatment. These discoveries were epoch making in the science of medicine and surgery, yes in the history of man. These dread diseases which had destroyed countless thousands of human beings and domestic animals, were now insignificient under the anti-toxine methods. Moreover we must believe that these principles will be successful against the infectious diseases as yet unconquered.

The debt of gratitude which the world of to-day owes to Pasteur and Lister cannot be estimated by the human mind. What lives their discoveries have saved, what suffering their scientific revelations have relieved and prevented cannot be told. What relief is to be brought to future generations is beyond the imagination. Volumes have been written on the lives of great political leaders. The names of generals who led mighty armies are known to every child, and are carved upon monuments of bronze and marble. Political leaders have died and their issues were buried with them, but the work of Pasteur and Lister shall live forever. Military leaders have left death, suffering, desolation, and shattered families behind, not so with Pasteur and Lister, their careers were spent in labors destined to save lives, to relieve suffering, and to make mankind happier for all times to come.

The history of the world, the story of Nations, and the lives of men are marked by epochs. So this day marks an epoch in the lives of the members of the class of 1907. Today we pass from the field of books and study, to that of active practice, but remembering that the sons of Hippocrates must always be students of text-books and current literature in order that they be not left behind by the rapid advances made in their already wonderful art. And on behalf of this class I wish to express to you, members of the faculty, with sentiments of boundless gratitude our appreciation of the knowledge and the spirit which you have instilled into us of the science of medicine and surgery. With a feeling of regret, overpowered by happiness, we now bid you farewell as under-graduates and greet you as brothers in our profession which is of all most humane and honorable.

GRADUATING CLASS NOTES.

Well, it's all over. Now it's up to you.

Dr. King sustained his reputation till the very last by coming to the graduating exercises fifteen minutes late.

The address to the class by the Rev. R. A. White was exceptionally good. He said his work was such that he did not often come in contact with physicians, but he usually took it up where theirs ended.

The printer did not know the sex of one of our graduates, so in the diploma the person was spoken of as "she." The person chanced to be Mirza Ameen Ullah Fareed. Dr. Ameen should enclose a little bunch of his wiskers next time.

The Drs. Conner and Conner furnish one extreme and Drs. Ball and Crofut the other. The former to be situated in California and the latter in Massachusetts.

DIRECTORY OF CLASS OF '07.

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George Alexander Schneider, 1562 Dunning St., Chicago.
Edwin Frederick Schroeder, Macomb, Ill.

Alfred John Schwartz, 518 Sedgwick St., Chicago.
Alvin R. Scott.
Charles Segal, 336 W. 12th St., Chicago.
Charlotte Margaretha Seckler, Mary Thompson Hospital, Chicago.
Clara Pauline Seippel, Cook County Hospital, Chicago.
Henry Hulse Seibert, 412 N. 7th Ave., Chicago.
Ansly Thomas Shearer, Fennimore, Wis.
Samuel Sher, 514 Milwaukee Ave., Chicago.
Myron A. Sherper, Milwaukee, Wis.
Frank G. Seidendurg, Elizabeth, Ill.
Evart James Silcox, 1644 Wellington St., Chicago.
George Mortimer Smith, 1238 S. River St., Eau Claire, Wis.
Hiram J. Smith, Cook County Hospital, Chicago.
Wilbert A. Staley, Montgomery, Mich.
J. Carl Steiner, Loraine, Ill.
Leo Steiner, 651 S. May St., Chicago.
Eli Nathan Stenn, 1841 47th St., Chicago.
Edward W. Thuerer, Baraboo, Wis.
John Toeller,, St. Bernards, Hotel Dieu.
Julius Arthur Toren, 161 La Grave St., Grand Rapids, Mich.
Charles P. Unger, Rochelle, Ill.
Walter Van de Erve, Libertyville, Ill
Robertus L. Van Dellen, Englewood, Ill.
Robert Lavern Wade, Stroh, Ind.
Earl P. Wagner 413 N. Michigan St., South Bend, Ind.
William Bard Wakefield, Hayworth, Ill.
George N. Wassom, Pontiac, Ill.
Robert Weber, Moline, Ill.
John Emerson Whitehill, South Bend, Ind.
Joseph Hall Whitely, Bonaparte, Iowa.
Pitt Stevens Wilson, 186 Livingston St., Grand Rapids, Mich.
F. Joseph Wochos, 903 W. Monroe St., Chicago.
J. Thomas Wood, 188 Warren Ave., Chicago.
Maurice B. Wolinsky, 170 Evergreen Ave., Chicago.
Rose Emma Zalesky, 332 Front St., St. Paul, Minn.

ALUMNI MEETING.

The 25th annual meeting of the Alumni Association of the College of Physicians and Surgeons of the University of Illinois was called to order by the president, Dr. C. B. King, of the class of '98, in the Grand Pacific hotel, on the evening of June 4th, 1907.

About sixty members were present.

The secretary then read the minutes of the previous meeting which were approved as read. The reports of the treasurer and necrologist were also read and ordered placed on file.

Due notice having been given of a proposed change in the constitution it was moved, seconded and carried that section I, of article 6, be changed to read "The annual meeting shall be held on the evening of Commencement Day."

Comment was made on the lack of object and spirit of the association. It was then moved by Dr. A. C. Croftan and seconded by Dr. W. A. Evans, that the incoming president appoint a "Committee on Policy" to work with the executive committee and faculty to further the interests and influence of the association. The motion was carried and President Johnstone later appointed the following:

Croftan, Corwin, Evans, Johnstone.

It was then voted that the executive committee appoint a nominating committee who are to send to the members, sixty days in advance, a list of two or more names for each elective office, to be voted on at the following annual meeting. The members, however, to reserve the right to add other nominees at the annual election if they choose.

As a sixty day notice would entail some expense for postage, it was moved by Dr. Quine and seconded by Dr. F. B. Earle, that the secretary be appointed a committee of one to consult with the advertising committee of the executive faculty and see what they would do to assist the association in the matter of postage. The motion was carried.

The following officers for 1907-08 were elected:

President—A. R. Johnstone, '87, 4147 Lake Ave., Chicago.

First Vice President—H. P. Mason, '00, Wilton Junction, Iowa.

Second Vice President—M. Meyerovitz, '90, 179 W. 12th St., Chicago.

Secretary (re-elected)—John Weatherson, '00, 103 State St., Chicago.

Treasurer—T. B. Wiggin, '86, 100 State St., Chicago.

Necrologist—P. H. Holmes, '03, 440 W. 65th St., Chicago.

W. A. Evans, term expires 1908
W. S. Royce, term expires 1909 } Executive Committee
U. G. Darling, term expires 1910

After refreshments and cigars President King acted as toastmaster and introduced the following:

Dr. W. E. Quine, who spoke on "Relations of Faculty and Alumni."

Dr. S. L. Fridus, '97, on "Reminiscences of '97."

Dr. A. R. Johnstone, '87, on "Hospitals."

Dr. M. Meyerovitz, '90, on "The Doctor in Politics."

Dr. W. A. Evans, on "Organization of the Alumni."

Dr. G. L. Davenport, '07, on "The Recent Graduate."

Dr. G. Lydston and others entertained with stories.

The meeting adjourned about 12 o'clock.

JOHN WEATHERSON, '00, Secy.

Annual report of the treasurer of the Alumni Association of the College of Physicians and Susgeons:

RECEIPTS.

June 5, 1906	Balance on hand	$81.50
July 2, 1906	Subscription to the Plexus	4.00
October 2, 1906	Subscription to the Plexus	2.00
May 24, 1907	Subscription to the Plexus	1.00
	Total	88.50

DISBURSEMENTS.

July 2, 1905	Check for 60 Subscriptions Plexus	$48.00
July 9, 1906	Check for 4 subscriptions to Plexus	3.00
October 9, 1906	Check for 2 subscriptions to Plexus	1 60
July 3, 1907	Check for 1 subscription to Plexus	.80

Stamps 42 cent	.08
Total	53.68
Leaving cash on hand June 4, 07	$34.82

Respectfully submitted,

TWING B. WIGGIN, Treas.

ALUMNI ASSOCIATION MEETING.

The annual meeting of the Alumni Association of the College of Physicians and Surgeons, held Tuesday evening, June 4th, 1907, at the Grand Pacific hotel, while unpromising at the start, developed a great deal of enthusiasm as the evening wore on.

The attendance on the part of both alumni and members of the faculty was small, and those present showed a lack of spirit that was almost distressing.

The first address of the evening was made by the Dean, Prof. Quine, who in the course of his remarks complained of the listlessness of members of the association as evidenced by the small attendance and the apparent indifference of those present. Dr. Quine referred to the benefits that would accrue to the association, to the individual alumnus and to the college from the activities of a live alumni association, and pointed to the need for closer relations between the association and the faculty, and suggested some means by which this might be accomplished.

Dr. Meyerovitz spoke to the toast of The Doctor in Politics, and urged the need for organization in the medical profession for the protection of our common rights if the profession was to preserve itself against the encroachmeuts of organized and hostile interests.

Then followed a characteristic address by Dr. W. A. Evans in the course of which he spoke of the defeat through the veto by the governor, of the bill for the purchase by the State University of the property of the college. Dr. Evans said that never was a more loyal spirit shown by the alumni of any college or a more active working interest taken by any organization than was shown by our own graduates in their efforts to further the interests of this bill.

Dr. Evans further spoke on the urgent need for better organization among medical men of this association in particular, that we may stand as a unit for rights that have been and are now being trodden upon day by day and year by year; rights that could readily be preserved by the exercise of comparatively little energy, provided the demonstration be made in force by an organized profession.

In the general discussion that followed Drs. Croftan, Fisher, Lydston, Weatherson, Johnstone and others took part and united in urging that some definite plan of action be taken with a view to awakening in our alumni association a spirit of enthusiasm and energy for the common good of all, and to this end committees were appointed to formulate plans and give some more definite aim to our existence as an association. Pledges were given by the newly elected officers that they would make every effort during the year to bring about better directed and more vigorous action on the part of individual members of the organization. That the hearty support of every alumnus may be obtained, your officers will address you from time to time through the columns of the PLEXUS and by direct communication whenever possible throughout the year.

Let us prepare early for a rousing meeting of the association in 1908, and each one do his best to further all of the interests of this association that we may individually and collectively reap the benefits to be derived from concerted action on all matters that are of interest to us..

A. R. JOHNSTONE, M. D., Pres.

SENIOR PROPHECY.

The last moments. Probably I would never see heaven again. As I walked passed futuroscope after futuroscope I stopped to open one or two I had accidentally missed. I looked far into the future of Dr. Frank Siedenburg. He was the same old boy, with his hair brushed flat and smooth—

neat as ever—a typical lady's doctor. He was located in the residence district of South Chicago.

Dr. John Joseph Toeller, of Illinois. I glanced into his life as I passed. Good natured old John, as of old, taking things as they came, and never worrying about anything. I saw him located in the South, "Way Down in Georgia," where Teddy's strenuous life is unknown.

One hurried look into the life of Dr William McKee Crosier recalled to me at once the good the doctor was doing in far away Alaska. He was everything to the people—preacher, lawyer, physician. While I was looking into the scope I received a telephone call from St. Peter telling me to hurry, as my time was already up. Bidding farewell to my guide I passed out of the marble room of '07 through a long hallway leading to the outside. On the outer steps I met the prophet of the class of '08 coming in to delve into the lives of the members of his class. How he ever worked St. Peter for a pass into heaven was certainly a mystery.

Crossing the flowery meadow, out into the bright sunshine, I slowly wended my way toward the huge gate which humanity for ages and ages have been surging against—the majority only to be thrown back again—to be turned away down the broad beautiful path leading to the bright glowing planet far in the rosy depths. Reaching the gate, one of the arch-angels gave me a parting boost and I landed outside and with one lingering glance and a good-bye wave to my guide, who I saw circling in the air above the gate, I turned my back and began looking around for the machine which had brought me to this land of Paradise.

The machine had not been disturbed during my two days visit in heaven, and climbing aboard I pushed forward the lever (called by the inventor "the Jaw-le-bo-gog"—Aimone was certainly great on coining new phrases, even back in the school days) and started gradually to descend through space on my dizzy journey to the earth. Left to myself, I dozed throughout the long trip, and in a seemingly short time I felt a jolt and heard great shouting. Opening my eyes I was amazed to find I had reached the earth, and wonderful to relate, had landed not only in dear old Chicago, but in the roller skating rink at Riverview Park.

This marked the finish of my brief, but wonderful trip to Paradise. I had entered the portals of heaven and associated with the angels; and now I must mingle on this sordid earth with anything but angels, except but one, and she—but that is another story.

[CONCLUDED.]

CATCH THE THIEVES.

Hist — burglars downstairs — silverware — revolvers — masks—stealthy footsteps. Woman upstairs—alone—frightened—dares not make an outcry. But if she has an extension telephone in her bed-chamber she telephones the police, without disturbing the burglars and without danger to herself. Extensions now cost only fifty cents per month. Telephone your order to the Manager. Chicago Telephone Company.

THINK IT OVER.

"If wishes were horses beggars might ride;" but no one need wish for an extension telephone—the cost being only fifty cents per month. Better pay one and two-thirds cents per day than wear away your life by running up and down stairs to annwer the phone. Telephone your order to the Manager at once and get your extension without delay. Chicago. Telephone Company.

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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SENIOR NOTES.

It is difficult to imagine a healthy woman who has been inpregnated with syphilis giving birth to a syphilitic child, but Tommy Joyce said it was possible.

Lindstrom and one or two other Seniors are trying to raise mustaches. So far the results are only a joke. Schneider is more ambitious and is fathering a Van Dyke, but he is a seedy looking dad.

Clark and his dog are frequent visitors at the college.

They have been here so often that the fellows have stopped asking if the dog is for Dreyer or Fantus. Note the resemblance between Clark and the dog. Smart dog though.

Dolan met a school teacher and told the entire class about it one day. The lady teaches deaf mutes, but that is not the trouble with James Edward. He is from Kankakee.

"1907 The Best of all" was changed to "1908 the best of all," and some of the graduating class seem to resent the insinuation, but so far they have not proven that we are not the best. We still claim all the honors of the college in regard to ability.

Mikkleson and our fair classmate from Ann Arbor are getting rather chummy.

Did you hear about Neimeyer going to sleep while standing up and holding a lamp. All the Ghetto people are discussing it and perhaps he will be seen in a Clark Street museum yet.

Hutchinson takes the prize for spelling. In writing a patient's history he put the man's occupation down as "Taylor." A man can peddle rugs over the city and be called a traveling salesman, but a maker of clothes cannot be confused with a popular brand of whisky.

Noger maintains that in obstetrics the sex need not be designated. Chance for an argument, for in some cases there are two people to be considered.

Miss E. Wood is to study nursing at the Park Avenue Hospital this summer. She invites all the Juniors to call either as visitors or patients.

We are through with "Swivel Knife Bill," and know all about laryngology."

SCHOOL OF DENTISTRY

DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., JUNE 20th, 1907.

SHOOTS FROM THE WISDOM TOOTH,*

BY E. W. OLSON.

In what more fitting manner could a society of doctors of dental surgery hold their annual celebration than by dining together? At the festal board we find a *set of plates* provided for every guest—doctors and patients alike.

Here teeth were inserted while you ate.

Toothsome viands furnished the most palatable *filling* for that *cavity* which engages the attention of the dentist oftener than any other.

Here we sit down together to test the apparatus which either our maker or his apprentices in the dental workshops have so graciously installed in a central and convenient part of our faces.

For what is a public dinner but an open contest in *mastication*, or, in slangy paralance, a *chewing match*, in which the more substantial courses on the menu or table of future contents finally are replaced on the order of toasts by delicious hot air, with wine sauce.

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*Read at the banquet of the Scandinavian-American Dental Society of Chicago, January 26, 1907.

And if all the lay members sitting here are at all like myself, they experience a sense of sweet revenge every time they have an opportunity to dine off of the D. D. S.'s, who are putting *their* teeth into *us* all the year round.

The ancient Norsemen—this was long before they had risen to the dignity of Scandinavians—had a pleasant habit of knitting life-long foster brotherhood in pairs by cutting some convenient vein and commingling blood. In our day, when blood flows, it is generally the sign of left-handed courtesy and no great measure of frienship between the parties concerned. I will admit, however, that some sort of fellow feeling may spring up between the dentist and his victim from the latter's mingling his blood with the whirlpool in the *dental cuspidore;* nevertheless, I am inclined to think that brotherhood and good fellowship are better and more agreeably *cemented* by means of a good dinner.

The dental profession is not as old as might be supposed. You can not tell its age by the teeth.

Now, there's the *tooth of time*, for instance. It has been gnawing, gnawing for numberless centuries, causing everything it comes in contact with to *decay*. But that old tooth whether it is an *incisor*, a *bicuspid* or a *molar* your science has never been able to determine—that old tooth is still as sound as ever. For that reason Father Time has never been much of a "hit" with the dental profession. But I assure you, gentlemen, that if any of you shonld succeed in drawing the tooth of time, your reputation would be made all right. That man's practice would at once reach enormous proportions, especially among the fair sex.

As compared with other professions, arts and crafts, the dentist is quite a fresh—I mean recent—phenomenon. I have found by diligent research that his vocation is an offshoot from two other "professions"—those of the tonsorial artist and the plumber. In former days the barber attended to people's teeth as well as to their hair and whiskers, and was often called upon to let blood, one of the principal duties of the old-time physician. True, the barber to this day continues to exercise the function of blood letting, but he has been shorn of the dignity that goes with the modern medical and surgical profession. A modern surgeon may give his patient a pretty close shave, but of course he never bleeds him—never.

How, then, was he associated with the plumber's craft?

Why, in olden times it was the custom to have hollow teeth filled with *lead*, not gold. I have been creditably informed that *plumb* is French for lead, and the knight of the scissors generally did the job. So you see that when the *barber* was a *dentist* he was a *plumber*.

Taking a gigantic stride from the ancient history of the profession down to the present, we proceed to analyze the modern, up-to-date, electrically equipped, and, best of all, *painless* dentist.

Most other business and professional men are driven to the disagreeable extremity of advertising themselves in order to get their names on the lips of the public. There's where the dentist has the "bulge" on them. *He is in everybody's mouth.* While most of us have difficulty in getting recognition for our work, the dentist's efforts are often cried about the community before he has fairly begun operations.

While greed is not counted among the virtues, a miserly old skinflint is an object of contempt and we have laws against usury, yet the public submits willingly to the *grinding ways* of the dentist.

To deprive a person of any of his members has been a punishable crime as far back as the adoption of the mosiac law, at least, yet the dental surgeon deprives us of member after member with impunity. Should anyone dispute our statement that a tooth is a *member* of the human body, that person surely has never known what it means to sever all the *tender ties* that bind us to them and to have *old associations torn up by the roots.*

Normally, it takes some time for a man to acquire an influence in politics. But any husky youhg dental practitioner has the "pull" of twenty mule teams or a First ward alderman in him from the very start.

The preacher may thunder against rottonness and devote his life to the task of keeping the bad members from makings others bad, and all this with little or no visible result. The dentist, on the other hand, enters right in the teeth of evil, cuts away rottenness, weeds out the bad ones, *bridges* every difficulty, and acts as a drawing and uplifting force on humanity toward better ideals and cleaner teeth. Like the clergyman, he earns his bread by the jaw, although in his case the jaw is not his own. Both have greater faith in operations than mere words.

The dentist may not be as good a man as Sampson of old in slinging the jawbone, yet he is usually a pretty good man *on the stump.*

As a public speaker he has the advantage over other spellbinders. They always run the risk of being interrupted and possibly worsted in argument. But the dentist takes no such chances. He never begins talking until he has his hearers securely gagged. From my own experience I gather that the average victim of his, while the buzzsaw seems cutting through his bones, would feel better if he said nothing and sawed wood.

A farmer who keeps adding acres to acres is generally supposed to be growing rich. A dentist, on the contrary, may be accumulating *achers* and *achers* all his life without an apparent increase in prosperity. This is probably due to the fact that the achers thus transferred are achers for growing purposes.

From the sleight-of-hand performances he executes, the dentist has sometimes been confounded with the prestidigitator. One of his favorite tricks is to hide a piece of the yellow metal in the patient's mouth and then take it out of his pocket.

A dentist was once mistaken for a building contractor. After he had been digging away for half an hour or so in the hollow sham of a tooth his patient, who happened to be Mr. Dooley, jerked the gag out of his mouth, jumped from the comfortable plush chair and said:

"Excuse me, sorr! I guess I'm in the wrong office."

"Why, didn't you say you wanted to see a dentist?"

"Shoor! But ye are not a dentist, begorra!"

"Certainly, I am."

"Ye are, are ye? Ay thawt ye were ixcavatin' fer a buildin'."

Having reassured his man, the dentist kept digging away. Shortly afterward, he was again interrupted.

"I'm just about through now," said the knight of the forceps, coaxingly.

"Put in the gas?"

"Yes, sir."

"Cement basement?"

"Yes, sir."

"Ay could fail ye sthringin' the illecthric wires."

"Yes?"

"Well, thin'," said Mr. Dooley, "if ye sthay in there much longer Ay'll be afther chargin' ye rint."

I will add a couple of incidents from my personal contact with members of your profession.

A couple of weeks ago I had a tooth that turned revivalist. It preached so powerfully about the root of evil and the badness of its fellows that it well nigh made a jumping Methodist out of me. I asked a friend what dentist he would recommend.

"You might try Dr. Gaswell," said he.

"Think he's good?" I inquired.

"No," said he, "but he can *cure* that kind of case."

I decided to act on his suggestion.

"Wait a minute," said my friend, "I'll give you a testimonial for him." So he scribbled these lines on the back of his business card:

I'd swear he's gentle as a lamb,
  And his work is far from bum,
But he stuffed my mouth so full of dam
  I couldn't cuss, by gum!

We who have known Dr. Tongs since before the war—*i. e.*, before his marriage—never had either hope or fear that he would ever marry. We knew he would never stop talking long enough to hear whether the lady in question said yes or no. Well, he didn't. I understand he sat up four nights and wrote out the following proposal:

Oh, why should we two remain alone?
Be flesh of my flesh and bone of my bone!
Without you my heart is an aching void,
Which, filled, would give happiness unalloyed.
You know I am awkward and rather coy,
So I send this note by a messenger boy.

She wrote back:

Dear doctor, I'll fill it for you, with joy,
And since you are absent, I kissed the boy.

So Dr. Tongs got his filling, which he considers as good as gold. The wedding was one of the crowning events of his dental career and the job is the only one he is willing to guarantee for a lifetime.

IN CONCLUSION.

There are many good people who believe that in the hereafter we are to continue in the same association and environments as in the present world. Now, I don't know as to that, but I shouldn't like to think that dentists will go to where there is weeping and gnashing of teeth while only their patients will wear the golden crown.

TOOTHSOME TOPICS.

By R. B. Tuller.

Vell, Ai tank Ai gotter tal some more about me, Ole, in hans new oxcupation, dentistry. Har bane olright. Ai bane make money—*eezy* money.

Un sence Ai bane see you last Ai bane gat me some new skollups. Ai bane yoin a soskiety. Ole now bane a peddygoggles, an har bane a fine ting, you bat!

Vell, of skourse; vy not? Dond Ai bane perfesser by a dental skollege? You bat!

Yon see, some time long in Deskember, somebody hav tal if Ai gone up by da Great Northern Ai find dental soskiety convention. So Ai gone up.

Ai fine 'em olright, for Ai see Yimreed in da bunch. Har got all da time in everyting bakause har bane on da trust board.

A dentist faller har tal me all dem fallers bane green dentists, an if Ai want to butt in Ai have to have da pastvord. An den him say, "Ai tal you, Ole. it bane easy; so den you go an tal it den you get in." An har tal me yust say "banana."

But Ai tal hem, "No, not on your life. Ai don't axskociate vid no Ginneys—not if I know. An Ai tal um Detta Skigma dond bane da soskiety Ai been lookin fer. Den har tal me da Soskiety of Dental Peddygoggles have meet by da Palmer House.

"Vell," Ai tal um "har may be vorse as Ginneys, but Ai go see, bekause Ai bane a dentist an Ai gat to bane in da skwim." So den Ai go.

Now who you tank Ai meet da first ting ven Ai go by da Palmer House? Yust my ol perfesser, Doc Measley, of da Onion Dental Skollege. Har tal me har don't bane a member of dose peddygoggles, but it bane no difference, hem say; hem come over yust de same to rubber. Den Ai tal um, "Me fer da rubber, also." So den ve rubber.

Bangby Perfesser Doc Measley, har look me over an har tal dis: "Ole, you bane look lak reddy money. You bane make money, Ai gass. Vy you dond came around un see your ol Halma Maytur some time? You bane our alumeye now. and ve bane proud of you. Vare you find a trust skollege feller who gradulate in swexteen veeks an gat good bizness an bane a perfesser in such time, huh? Bagosh, Ole, you bane da schmartest faller vat ever bane gradulated from da great Onion Skollege by Amerika, Chiskago."

Vell, me, of skource Ai know har tal yust right alright, alright, but Ai not tal hem so. All same it bane up to me to say something good an skomplimentary; but vot? Ai don't vant to say, "Perfesser Measley, you bane da best perfesser in Chiskago," bekause Ai tank about—oxskuse me, Ai bane have too much delicatessen to tal him—but Ai tank bout me, Ole, da best perfesser un da best skollege by Chiskago; so Ai yust tal um, "Doc Measley, you bane a fine yentilman, alright, alright. less go hop off da vater vaggon."

Hem say, "*Ol right*; vere ve go hop?" An Ai tal hem ve go down stairs, Ai tank, fer Ai see some peddygoggles going down an ve follow, fer Ai tank dey yust look da bane goin hop too.

Say, you bane in dose Palmer skaloon? Yas? You bat hem bane a fine place. Har got bar half block long; but you tink ve gat next? No, ve gat in bout swex row back an vait bout swexteen rounds. Everybody up next bane take shake drinks un high balls on skware içe mid polly-narix, un har take lot of time; un den dey talk un laugh un repeat.

But bangby ve get next alright un *ve* take high ball on skware ice an polly-narix, an han bane perty good—only dose ice hav bane sawed out too big, un dey skare a faller ven hem pours. Hem don't skare me un Doc Measley. Ole bane good sport alright—Ai gass. Tree high balls, swexteen minutes, yust lak other fallers. Den ve fall back an rubber.

Doc Measley har bane funny faller un har say, "Ole, peddy-goggles up stairs, goggy-peddles down yare, huh?" un har laugh hard. "Vell," Ai say, "vot's da yoke? Ai dond see?" An Ai dond find out yat. Ai don't find out yat vot peddygoggles bane: only dey vas schmarter as other dentists, maybe, un dey all bane good fallers, un dey all bane factulty fallers, un Ai got a pointer. Yas, Ai goin get me up a factuly by my skollege. You bat.

Vell, ve stand un listen un rubber un Ai hear one faller har tal another faller lak dis: "Ai bane gat up a new plate, by new vay of paper pulp, an har bane a dandy. Teeth an all, any color you like. Ai get a patent. Yes, hem bane a dandy ven Ai gat um, so har dond soak water. Ai *almost* got um so." An de other faller har bane near-schmart un say: "Say, what *you* want, Doc, bane a plate dot don't soak up whisky." An da other faller har say: "So? Vots da matter by you? Ai make *you* a plate like dot." But dey didn't fight.

Den Ai bane gat nerve, an Ai speak by dat fallar, un Ai say dis: "Oxskuse me, but Ai vant ax you for a 'pinion: If you make von of dose plate for a man, un he vare em in his hip pocket, un sit down on em, an dey bite hem, and har gat dos plood pizen, con hem sue you for breach of promise, or someting?"

Vell, Ai bane tank he vas a yentilman un like a yoke, but hem say: "Look a yare, vot you buttin in for? You yust go to ——!" Vell, Ai didd't go enny vay also. But har hatter set 'em up fer about swextee fallers. Ai gass yas!"

Over dis oller vay a faller har say to anoller faller: "Look here, Ai passed that up twenty yare ago. Har bane unpractical, unskientific an obskolete." Ai dond know vat it vas, but da oller faller har say back: "Now, look here; you can't tal me. Ai bane practice dentistry fore you vas born, an Ai bane teach in a skollege twenty-five yare, an Ai bane a peddy-goggle for da last leven yare, and Ai gass Ai know vat Ai bane talk about."

Den da oller faller har tal da oller faller: "Ai don't care vot you say. *Ai* take adwance position on dose tings. You listen by me now, an *Ai* tal you how to make new kine of porcelain crown." Den da oller faller har listen some, an har butt in more. an da oller faller har got huffy and har say: "Listen, listen, you chumps! Vy you don't listen? Ai tal you someting." Da oller faller har say: "Oh, rats! You can't tell me enny ting. Ai von't listen!" Den oller faller har say: "Vill you keep still von minute? Ai got a proposition you vill listen to." Den oller faller har say, kind of mad: "Vell, vot it is? Vot it is?" Un da oller faller har say: "Let's have anoller high balls." Den da oller har say: "Vell, now you bane talk some skence!" Un dey didn't fight.

Den Doc Measley har say: "Ole, *Ai* got a proposition," un so ve yust make ourselves in da front row again. Doc Measley har say: "Ole, Ai gon call for a drink hem can't make—not dis time a yare," so har say, "Mix us up a mint yulip." You tank da barkeep bane faze? No; har say, "Alright," an has go by de ice box and har brang out some green leaves an har smash 'em in a glass, ad vid whisky an sugar ve drink um. Den Doc har ask, "How you like um, Ole?" Un Ai say, "Hem bane vary goot, but you don't fool Ole. Hem bane mint yulip maybe, but hem bane skanitol yulip all a same. Hem bane goot alright, cause hem bane antiskeptic. Oh, yas, Ai gass Ai know skantol."

Vell, Doc Measley har conkluded to go home, but Ai hear bout a banket un Ai say to me, "You, Ole, you vant to be in da skwim; maybe you go to da banket?" So Ai go by a faller un Ai tal um, "How bout dose banket?" Un har tal me, an har ask me if Ai go. Den har say hem bane got a ticket un har can't go himself, an har say, "Let me sell you my ticket; it bane cost me $10." An Ai say, "Ai don't bane a member." Un har say, "You bane a perfesser in a skollege an das alright. You buy dis ticket an you bane a member, Pas all—see?"

Vell, Ai take hem up an hand over da bucks an gat a ticket.

Den da faller har say, "Now, Ole, if you want to bane real swell, you ought to bane have a dress suit or tuxskedo bizness."

Vell. of skourse, Ai vant to be skwell, un goot faller, un so nex day Ai 'tend all da meetings (up stairs) an dey tal how to run skollege, an Ai gat more pointers. Den Ai go by da Hub an Ai buy me a tuxskedo suit, a bile shirt, a yumpin yack hat, white gloves un a new pair shiney shoes, un a cane, un Ai vent by da barbers un Ai bat you Ole look fine. Ai gass yas, fer when Ai vent in by da banket dat night Ai yust make a senskation un Ai vas mistooken fer Yak Nymans. Har bane a Norvegen, too, un a pace setter. So now, by me, Ole.

So Ai eat doze banket, shake hans mid Yon Byram un de oller head fallers, un now Ai bane full flege peddy-goggles. Next time Ole goin make a speak, un Ai tal how to make a gradulate, a perfesser and dental skollege in bout swex months un beat da trust un Yimreed, bote. Goot bye. Ai see you again some oller time.

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AMENDMENTS TO THE PHARMACY LAW.

The bill amending certain sections of the Illinois Pharmacy Law has passed the General Assembly, and has been signed by the governor. It becomes effective July 1st. Its salient points are:

1. The actual time of attendance at a reputable school of pharmacy is credited as a part of the "four years practical experience in compounding drugs" required by the law, provided that such credit shall not exceed two years for registered pharmacist, or one year for registered assistant pharmacist, and further, provided that applicants shall be able to show, by proper certificates, that their school work was satisfactory.

2. The state board of pharmacy is given the right to establish a uniform and reasonable standard of educational requirements to be observed by schools of pharmacy and to determine the reputability of such schools by reference to their compliance with these requirements.

3. The "locality certificates" which have heretofore been granted to candidates upon passing a modified examination, and which are operative only in the locality named in the certificate, are now restricted to villages and towns not exceeding 1,500 in population.

4. Provision is made for increasing the amount of the renewal fees where these are not paid in advance. Thus the registered pharmacist's renewal fee may not exceed $1.50, if paid between January 1 and March 1; $3.00 if paid between March 1 and April 1; and $5.00 if paid between April 1 and May 1. For assistants' the corresponding amounts are $1.00, $2.00 and $4.00, respectively. After May 1st the delinquent's certificate is forfeited.

5. Section 14, relating to adulteration and substitution, requires conformity in strength, quality and purity with the U. S. Pharmacopœia or National Formulary when medicines are sold under names recognized in these standards. Medicines not sold under official names must not fall below the professed standard of strength or quality under which they are sold. Penalties are also provided for the substitution of one medicine for another in a prescription, and the Board of Pharmacy is empowered to employ a chemist or analyst to examine into cases of claimed adulteration, substitution or alteration, or other violations of the law.

These amendments give largely increased power to the Board of Pharmacy, and are in line with the recommendations of the Illinois Pharmaceutical Association, at its meeting last year. They will meet with the approval of pharmacists generally as marking a distinct step forward.

ALUMNI NOTES.

Hugh McNair, '07, has taken a position with J. E. Smith, Kankakee.

Walter Mayhew, '06, is with W. M. Benton. at Peoria. A. T. Schleder, '02, is employed in the same pharmacy.

A. J. Nelson, '07, has engaged with the Pfeiffer Chemical Co., of St. Louis. He will have charge of the manufacture of fluid extracts, of which this firm makes a large line.

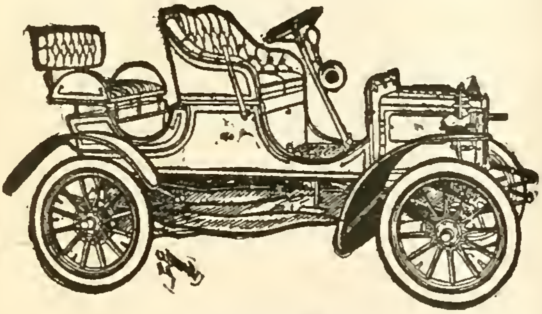
Thure Johnson, '05, has succeeded C. A. Gullbrandson, at Roseland. Mr. Johnson is well known in Roseland, having been employed in Schmid's pharmacy for several years. He starts upon his business career with every prospect of success.

Dr. A. W. Baer, '85, President of the Alumni Association of the School of Pharmacy was recently elected a member of the Executive Committee of the University of Illinois Alumni of Chicago. Efforts will be made by the officers and executive committee of this parent association to bring into closer relations the various alumni associations of the University of Illinois in Chicago.

Mr. F. W. Mayo, '01, was married February 21st, and has recently returned from a six weeks tour of Mexico. Mr. Mayo is the owner of a prosperous pharmacy in Memphis, Tenn.

Harry Brisley, '86, has been appointed a member of the Arizona Board of Pharmacy. He is engaged in the drug business at Prescott, Arizona.

Benjamin Perry, '01, is among the first fifteen Food and Drug Inspectors who were recently appointed by Secretary Wilson of the Department of Agriculture.



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THE DIAGNOSIS OF TRAUMATIC RUPTURE OF THE ABDOMINAL VISCERA.*

By D. N. Eisendrath, M. D., Chicago.

In the examination of a patient for a suspected rupture of the abdominal wall or one of the viscera, two questions present themselves: First, has any viscus been injured? Second, if so, which viscus or viscera? Surgical intervention is indicated in every case, if the patient's condition is such as to permit of an operation. In order to be of any benefit, however, the operation should be performed within the first twelve hours. It is for this reason that it is necessary to make the diagnosis as early as possible. A single examination will often not be sufficient. It is best to examine the patient at short intervals, say of an hour, in order to watch any changes in the general condition and the gradual appearance of such local signs as are indicative of visceral injury, such as muscular rigidity, tenderness, etc. In the examination of such a patient it is advisable to follow a more or less fixed routine. This can be divided into four parts: 1, The history of the accident; 2, the general condition of the patient; 3, the local examination of the lower portion of the thorax and of the abdomen itself; 4, the search for symptoms of injury of individual viscera.

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*Read at the meeting of the Chicago Medical Society, Oct. 31, 1906.

1. *The History of the Accident.*—Forces which could cause rupture of the abdominal wall or viscera act either directly upon the organ injured or upon the entire abdominal contents. The former is known as circumscribed, the later as a diffuse force. It is of some importance to ascertain the axact mode of injury. As examples of a circumscribed, i. e., quite localized, force may be mentioned kicks or blows, blunt objects thrown at the abdomen, such as a brick or hammer, a fall across a board or similar substance. Such a circumscribed force is more likely to cause a rupture of a hollow viscus, like the stomach, intestine, gall bladder or urinary bladder. Examples of diffuse force are, being run over, crushed between two objects, etc. A diffuse force will as a rule, be more likely to be followed by a rupture of a solid viscus, like the spleen, liver, pancreas or kidney, or by a laceration of the abdominal muscles. There are, of course, exceptions to these facts; for example, in two cases of my own, of rupture of the bladder, the injury followed a crushing force. In one the patient was caught between two street cars moving in opposite directions. In the other the patient was run over. In both, the accompanying condition was a fracture of the pelvis. A third indirect mode of injury is after a fall upon the head, buttocks or feet. The organ follows the line of force and is torn during the recoil.

2. *General Condition of the Patient.*—This is the second factor to be considered in making a diagnosis. Clinically, we encounter five classes of cases: (1) Those with such marked primary shock symptoms that the patient does not improve, but death follows a short time after injury.

(2) Those who show marked signs of shock immediately after the accident and do not improve, their symptoms gradually becoming those of internal hemorrhage. These patients either die in a few minutes or hours or the signs of internal hemorrhage persist, so that a diagnosis of bleeding into the free peritoneal cavity or retroperitoneal tissue can be made. In a recent case of the writer's, of fracture of the pelvis with rupture of the bladder and laceration of one of

the iliac vessels, the persistence of the symptoms was thought to be due to shock, but were, in reality, the result of internal hemorrhage,

(3) Patients who have suffered from shock, before being seen, but whose general condition is so unchanged at the time of examination that no visceral injury is suspected until the symptoms of a beginning peritonitis or of a gradually increasing anemia appear to direct attention to the abdomen. In such cases an exact history of how the injury occurred will often cause one to watch for abdominal symptoms. To this class belong those cases of injuries of the thorax, such as fractures of the ribs, contusions of the lung, etc., in which the thought of a possible abdominal injury has not occurred to the physicians in charge until persistent vomiting or other signs of peritonitis or internal hemorrhage show themselves.

(4) Cases in which there are such marked primary shock symptoms that one would positively expect serious visceral lesions. The symptoms disappear and nothing is found to explain them.

(5) Patients who have sustained an abdominal injury through the action either of a circumscribed, diffuse or indirect force and have shown no symptoms immediately after the accident.

After a variable interval, however, from 48 hours or to ten day, symptoms appear which indicate that a serious visceral lesion has been overlooked. If a clot has become dislodged, the symptoms are those of internal hemorrhage. If a contusion of the intestinal wall has occurred, it may result in perforation, or a tearing off of the mesentery may be followed by gangrene and the symptoms peritonitis may appear the second or third day. If there has been extravasation of urine or blood around a ruptured kidney or around an extraperitoneal tear of the bladder, the symptoms of sepsis may appear some days after the accident.

Under shock symptoms are understood pallor of the skin and visible mucous membranes, rapid, weak pulse and respiration, cold clammy sweat, stupor or unconsciouness, lowering of blood pressure, dilated pupils and vomiting immediately following the accident. In making an examination of the patient, one should note whether the above symptoms of shock are present or absent. In case they are present and persist for more than a few hours, one must look for local signs of visceral injury. If the patient does not react from the shock, one must look for some cause in the abdomen. Extreme pallor, a weak, rapid pulse with but little tension, thirst, restlessness, shallow respirations and a decrease in blood pressure, as determined by the Riva Rocci instrument, indicate internal hemorrhage. If such is the case; it may be impossible to distinguish the condition of internal hemorrhage from shock, except by the absence of unconsciousness, cold clammy skin and dilated pupils. There are cases reported in which both the symptoms of shock and internal hemorrhage appeared immediately after the accident, so that it is impossible to distinguish between them until some hours have passed and the hemorrhage symptoms predominated. If the condition is due to hemorrhage, the patient becomes paler; more apathetic and somnolent. the pulse gets smaller and more rapid and the respiration shallower, even when there is no peritonitis present. The writer has, on the other hand, seen a number of cases of severe intraperitoneal hemorrhage in which the pallor was not a noticable feature, the primary anemia having been partially recovered from. These exceptions are particularly mentioned to emphasize the facts that in some cases it is almost impossible to make a diagnosis before operation and that too much reliance should not be placed on the presence or absence of any one symptom.

3. *Local Signs of Injury.*—Examination of the skin and abdominal wall. In injuries of the abdominal wall or viscera with but slight or no external signs, one should note the presence of an accompanying fracture of the lower ribs or of cutaneous hematomata. In the same manner the presence of a palpable gap in the abdominal muscles, with or without the appearance of a swelling having all the characteristics of a hernia, is of value. From an experience of four-

teen cases of traumatic rupture of the abdominal viscera or wall with slight or no external signs, I have come to regard the presence of muscular rigidity, of localized or diffuse tenderness, of pain on pressure and of dulness in the flanks or above the pubes as the most important local signs. The rigidity is of special value if it is most marked over the point of injury and can be observed to increase in extent from hour to hour. This is also true of tenderness on pressure. The muscular rigidity is due to a reflex contraction of the abdominal muscles, called the "defense musculaire" by French surgeons. It is one of the most characteristic symptoms, and is quite marked at an early stage over the injured viscus. This is also true of the pain and the tenderness on light pressure, which usually accompanies the rigidity. These symptoms are indicative either of peritoneal irritation due to the presence of blood or of peritonitis due to the escape of bowel or bladder contents. This rigidity and tenderness gradually extends over the entire abdomen. The steady increase in pulse rate and in the degree of tympanites and the onset of vomiting, etc., soon show the presence of a complicating peritonitis. If pain is due to injury to the abdominal wall alone, muscular rigidity is never as marked, and passes away in a few hours, especially after the use of hot applications as recommended by J. C. Hubbard.[1]

In the early hours after an injury, especially in those cases in which there are practically no signs of shock or of internal hemorrhage, one can detect dulness in the flanks or above the pubes. Such dulness, if it changes to tympany when the patient is turned upon the opposite side, means free blood or urine in the peritorial cavity, If the dulness is only above the pubes and does not vary with change of position, it is due to an extraperitoneal rupture of the bladder. Unfortunately such free fluid can seldom be demonstrated at an early stage, owing to the muscular rigidity. At a later stage, its presence is often obscured by the tympanites. I have found it most often above the tubes in intraperitoneal hemorrhage.

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[1] Boston Medical and Surgical Journal, April, 1906.

4. *Symptoms of Injury of Particular Viscera.*—A convenient division for the purpose of diagnosis of the symptoms of injury of the individual viscera is: (a) Those cases in which symptoms of injury of the alimentary canal predominate; (b) those in which symptoms of injury of the urinary organs predominate; (c) those in which signs of internal hemorrhage predominate.

(a) Symptoms of injury of the alimentary canal:

(1) Vomiting.—Nausea or vomiting, continuing for some hours after the receipt of an injury, are very characteristic signs of the presence of an injury to the stomach or small intestine. If the vomitus contains blood it indicates an injury to the stomach. If the vomiting is billious in character, a wound of the small intestine should be suspected. This recurrence of vomiting has come to be regarded as the most valuable sign of intestinal injury.

(2) Obliteration of the Liver Dulness.—This sign, if present in the form of tympany, replacing a normal hepatic dulness is of great value. Unfortunateiy, however, it is rarely present, so that but little weight can be placed upon its absence.

(3) Presence of Evidence of Free Fluid in the Peritoneal Cavity.—As was stated before, the presence of free fluid in sufficient quantities to permit of its detention by percussion is so rare in the early hours of a stomach or intestinal injury as to be of little value. If, however, a changing line of dulness in the flanks and above the pubis can be found, it is indicative of such visceral perforation. One must, however, exclude the possibility of intestinal coils full of fluid feces and the possibility of free hemorrhage giving rise to the same signs. The most typical symptoms, aside from the recurrence of vomiting and of increasing rigidity and tenderness at an early stage of gastric or intestinal perforation, are the gradual rise in the pulse rate and in the presence of an increasing leucocytotis. If an increase in the pulse rate is not due to primary shock or hemorrhage,

such a rise is strongly indicative of a beginning peritonitis.

(4) Tympanites.—If, in a patient who has sustained an injury of the abdomen in any of the modes above described, there is a gradual increase in the distension of the abdomen and in other symptoms, such as inability to pass flatus, there can no longer be any question as to the existence of a perforation. As was stated above, in the majority of cases, a diagnosis made when tympanites is marked is of comparatively little value from an operative standpoint, since septic paresis of the intestines is already well advanced. The passage of blood with the bowel movement is also a positive sign of intestinal injury. If black and tarry in character, it indicates hemorrhage high up toward the stomach or the duodenum. If fresher in color it indicates hemorrhage lower down. If the mesentery is torn from the bowel or an area of contusion in the wall of the gut, with subsequent sloughing, has resulted from the accident, the symptoms of peritonitis will not appear so early. The secondary perforations or gangrene of the bowel will cause symptoms after 12 or 48 hours. If perforation occurs suddenly the onset may be as acute as in a typhoid perforation.

(b) Symptoms of Injury in the Urinary Organs.—These vary with the degree of the injury. In rupture of the kidney the most characteristic symptoms are the following: (1) Pain in the lumbar region, usually of a severe boring character. The pain often radiates down the ureter to the testis of the same side, as in a typical renal colic. (2) Tenderness on pressure either from in front or directly over the kidney region from behind. (3) A gradually increasing swelling over the renal region of one side, causing some dulness in the corresponding flank. Such a tumor may be the result of extravasated blood or of urine or both.

(4) Hematuria.—This varies greatly. It may be quite severe and persist for a number of days and then gradually diminish in amount. Again, blood may only be demonstrable by the aid of the microscope. Hematuria may, at times, be absent and yet extensive laceration of the kidney may have occurred, as in a recent case of my own, in which there

was pulpification of the kidney as a result of a crushing injury, without any blood in the urine. The ureter was blocked by a large clot, to that no hematuria occurred,

In order to state positively that hematuria is from the kidney, the bladder should be washed out and some of the irrigating solution left in the bladder. This rapidly becomes tinged with blood, as the latter escapes from the ureter and passes through the catherer, which has been left in place. In some cases the above symptoms of injury to the kidney may be accompanied by evidences of displacement of the kidney, as determined by palpation of the abdomen.

There is an injury or rupture of the kidney which requires special mention. It is called intraperitoneal rupture of the kidney and occurs most frequently in children, in whom the peritoneum over the kidney is very thin and easily torn. This may also occur in adults. In this form of renal injury, hemorrhage occurs directly in the general peritoneal cavity instead of into the retroperitoneal tissues, giving rise to symptoms which resemble, in every particular, the symptoms of internal hemorrhage due to rupture of the spleen or liver and can not be differentiated from the latter before operation. It is impossible to diagnose an injury of the ureter until a tumor forms along the course of the ureter, accompanied by diminished secretion of urine and hematuria.

Injuries of the bladder may be intra- or extra-peritoneal. In extra-peritoneal tears, there are evidences of dulness above the pubis, the area of dulness not changing with change of the position of the patient; or there is bulging toward the rectum at the base of the bladder to be felt *per rectum*. Intra-peritoneal ruptures of the bladder can not be differentiated as such, except when symptoms of peritonitis appear. A diagnosis at this time, as was stated before, is of comparatively little value from an operative standpoint. In both extra- and intra-peritoneal ruptures of the bladder, the catheter can be easily passed into the bladder. The urine is slightly blood tinged, much less than in injuries of the kidney, and the quantity of urine obtained is very small or there may be none at all.

The injection test for perforation or rupture of the bladder is but little to be relied upon, This test consists in inserting into the bladder a definite quantity, usually from four to six ounces of sterile water. If the bladder is perforated the greater portion of all of this leaks out into the peritoneal cavity or into the extra-peritoneal tissue, and a smaller quantity than was put in returns through the catheter. This test is unreliable, because the tear or perforation may be valve-like in character, allowing but a small quantity to escape or the urethra may be torn at the neck of the bladder. The most reliable signs of injury of the bladder at an early stage are (a) the history of and the location of the injury; (b) the presence of practically no urine in the bladder when catheterized, and then bloody and in small quantities; (c) the pain over the bladder; (d) the constant desire, but inability to urinate. When peritonitis has set in it is impossible to state in any case whether this has been due to perforation of the bladder or of some portion of the alimentary canal. Fractures of the pelvis are ofter accompanied by injuries of the bladder and urethra.

(c) Cases in Which Symptoms of Internal Hemorrhage Predominate.—These will be found more or less characteristic of ruptures of the liver or spleen or of the intra-peritoneal ruptures of the kidney. Pain, localized tenderness and rigidity, situated over the splenic region, accompanied by evidences of hemorrhage into the peritoneal cavity, are indicative of injury to the spleen. The same symptom, located over the region of the liver, especially if the pains radiate to the shoulders, is typical of injuries of the liver. In injuries of the liver and spleen and of those of the kidney in which the blood escapes into the general peritoneal cavity, the diagnosis may be made from these local signs, such as tenderness, rigidity, etc., added to the presence of a shifting line of dulness in the flanks, i. e., of free fluid in the peritoneal cavity. Icterus, when present, is of great value as indicating an injury of the liver. The presence of free blood in the peritoneal cavity, whether due to an injury of the omentum or of the mesentery, or the deep epigastric artery, or of the liver, spleen or kidney, causes early symptoms of so-called peritonism or peritoneal irritation. These are also the same as those of a beginning peritonitis, but are less rapid in their onset. They consist of gradually increasing pulse rate, tympanites and leucocytosis. These, however, gradually subside if the blood remains aseptic and is absorbed. Injuries of the pancreas cause shock, vomiting and localized pain over the epigastrium and often distension of the upper abdomen. Fractures of the ribs accompany the subcutaneous injuries of the liver and spleen in many cases. In conclusion I would urge the careful examination of every case in which the abdomen has been injured by some non-penetrating, i. e., blunt force. It is of less importance to be able to diagnose the particular viscus injured than to be able to say that operative intervention is necessary. With the exception of injuries of the kidney, the prognosis in general of non-operated cases is bad. From 80 to 90 per cent of these die. Early diagnosis has already changed this percentage to 40 to 50 per cent recoveries in the last fifteen years through early operation, and we can hope for still better results.

TRAUMATIC CEREBRAL DIABETES.

By M. J. Seifert, M. D., of Chicago.

Instructor in Medicine, College of Physicians and Surgeons, University of Illinois; Surgeon Lake View Hospital; Visiting Surgeon St. Mary of Nazareth Hospital, Chicago.

Of of the great problems of modern medicine, there are perhaps none more important than those relative to disturbed matabolism, which is the basis of many diseases of obscure etiology. Unfortunately, with our limitations, we cannot establish more of the pathology of these diseases, nor cope with them rationally and successfully, until the phisiologic processes associated with disturbed metabolism are better understood.

One of the most interesting of these problems is that of diabetes mellitus. The pathology of this disease has ever been one of the most elusive problems of medicine. Repeatedly during the last four decades medical science has been on the verge of important discoveries relating to diabetes, when, instead of dispelling uncertainties, other and more complicated problems have arisen. It is, of course, due to the obscurity of the physiologic processes involved in carbohydrate disposal that the pathology of diabetes mellitus remains uncertain.

Since this paper deals with a subject which is at the present time being investigated with remarkable activity, we feel that a report of this kind is, in a certain sense, out of date as soon as it has left the press. Within a few months, no doubt, valuable papers will appear, which would now be of great service in developing this subject. Nevertheless, we are certain that at any stage of progress a concise summary of knowledge tends to stimulate further research.

Pathology.—Thompson,[1] 16 years ago, pointed out that the muscular tissues are virtually the chief generators of animal heat, and that quite apart from their function of contraction and relaxation is their function of oxidation. This author asserted that the blood collected from the veins of a large muscle, like the gluteus, even though the muscle were at perfect rest, contained less oxygen and more carbon dioxid than the blood of the right ventricle itself, as the latter was mixed with blood from the great glandular viscera where oxidation is less active than in muscle. This shows how much oxidation of blood contents occurs when the blood is coursing through muscular tissue, and points to the conclusion that, as the chief material for such oxidation consists of carbohydrates, some failure in this muscular function might bear direct relation to the pathologic failure of sugar oxidation in diabetes.

Cohnheim's[2] contribution to the physiology of carbohydrate metabolism is perhaps the most important paper that has appeared to date. It would seem that in the islands of Langerhans there is formed a substance which is like a ferment in constitution, as it is destroyed by heat. This substance, passing to the muscles through the blood stream, meets in the muscle cells another ferment or proferment, and between these a reaction occurs, resulting in the formation of an enzyme which has the power of rapidly destroying sugar. From this it would appear then, that in pancreatic diabetes there is an absence or a deficiency of the specific secretion of the islands of Langerhans, which is necessary to make the glycolytic substance of the muscles (and perhaps in other tissues of the body) active where sugar is oxidized.

The unknown ferment that results from the action of pancreatic and muscular zymogens seems to be specific for dextrose, for in diabetes other forms of oxidation seem to be impaired but little if any. The remarkable feature about this discovery is the idea that the combined action of pancreatic and muscular tissue is necessary.

Cohnheim's experiments afford a possible explanation why in some cases of diabetes mellitus we do not find lesions of the islands of Langerhans. These cases may prove that the muscles are at fault, and that the ferment which is supposed to be supplied by them is not produced owing to some functional disturbance of the muscular tissue.

Under the name of hemachromatosis, Von Recklinghausen,[3] in 1899, described an affection characterized by general pigmentation. These cases were associated with an enlarged, pigmented liver, and often an interstitial pancreatitis. In the advanced stage of the disease, when the islands of Langerhans are materially affected, glycosuria and diabetes develop.

Anschutz[4] collected 24 cases of diabetes, all in males, resulting from hypertrophic cirrhosis of the liver and cirrhosis of the pancreas. Of the 24 the liver showed the changes of pigmentary cirrhosis in 23. Of 22 cases, 21 showed involvement of the pancreas. In 18 cases in which microscopic examination was made, pigment was discovered in various organs. Only a few cases occurred without diabetes.

Experiments of Blum and Herter[5] proved that the introduction of adrenal solution into the body, especially when injected intraperitoneally or applied directly to the pancreas produced glycosuria in anima,. Herter produced it with other reducing substances.

Etiology.—Diabetes is due to the disease of the pancreas in from 50 to 60 per cent of all cases.

According to White,[6] diabetes should be classed among the neuroses. The disease obviously arises in the sympathetic chain which controls the secretory functions of the kidneys.

Diabetes also occurs frequently when there has been traumatism of the head, according to some statistics, in 20 per cent of the cases, according to others, 1 in 30 cases. A large number of cases of traumatism of the head have been studied in great detail by Higgins and Ogden.[7] These observers give a review of 212 such cases admitted into the Boston City Hospital within 13 months. These were divided into five classes; 1. Wounds of the scalp. 2, Wounds with dunadation of the bone. 3. Concussion, including cases with loss of consciousness, but without fracture. 4. Fracture of the vault. 5. Fracture of the base.

Of the first class, 84 cases, 5, or 6 per cent presented glycosuria; of the second class, 43 cases, 4, or 9 per cent presented glycosuria; of the third class, 40 cases, 1, or 2.5 per cent presented glycosuria; of the fourth class, 24 cases, 5, or 20.8 per cent presented glycosuria; of the fifth class, 21 cases, 5, or 23.8 per cent presented glycosuria. In all 212, 20 cases presented glycosuria.

From the examination of these cases the following conclusions were drawn: 1. Sugar may appear as early as six hours after a head injury and disappear within 24 hours; the average time for appearance, 7 to 12 hours; the average time for disappearance, 5 to 9 days. 2. A small proportion of cases exhibits a permanent glycosuria from date of head injury.

Bernstein-Kohan[8] reported 45 cases of diadetes mellitus, 25 of which followed traumatism of the head.

Since the time of Claude Bernard, we are aware of the fact that lesions of the floor of the fourth ventricle are particularly liable to give rise to diabetes. Several cases have been observed in man. Lesions in various parts of the encephalon may bring about the same result. It is extremely probable that syphilis is not a cause of diabetes, except through the influence of diffuse lesions of nerve centers,

In 27 cases, Saundby[9] examined the brain. The organ was normal in but five instances, the abnormalities consisting most frequently of edematous brains with thickenings of the membranes. Less frequently the organ was enemic or cystic, particularly in the frontal lobes, in the pons and in the medulla. Careful examination with the aid of the microscope failed to indicate any histologic changes, except in one instance in which the capillaries of the vagus nucleus seemed to be abnormally numerous and full of blood. Lorand[10] reports two fatal cases of diabetes, due to fright or psychic trauma.

Gibier's[11] experiments on dogs establish the psychic etiology of diabetes.

Diagnosis.—According to some authorities,[12] the only valid distinction between glycosuria and diabetes is that the presence of the urine of diacetic acid, shown by the ferrichlorid test, is generally indicative of confirmed diabetes. When glycosuria lasts more than a year it is safe to pronounce it diabetes. Time, in other words, and not the variability, either of the glycosuria or of any other accompaniments, is the best ground for diagnosis.

Mager[13] points to the following as an early symptom: "The pulse is slow in prone position, in assuming the sitting position, even passively, the pulse becomes weaker and more frequent."

Albuminuria exists in diabetes in at least a third of the cases, but in only a few cases is it symptomatic of Bright's disease. In 1,200 cases reported by Schmitz[14] albuminuria was present in 824. Jacobson[15] claims that this complication is more frequent in the traumatic than in the pancreatic form and most frequent when obesity is present. Replacement of sugar by albumin is considered by the author to be a grave sign.

According to Zaudy,[16] hydronephrosis is a rare complication. In Naunyris' monograph of 40 cases it was present only in one instance.

Optic atrophy, according to Osler, is common in diabetes.

Prognosis.—Pancreatic cases of diabetes are always grave. The younger the patient the more serious the outlook. This points to diabetes as a deeply-seated constitutional disorder, and not a localized disease of any one organ. Heredity and greater liability of certain races would substantiate this view.

Mandel and Graham Lusk[17] claim that if a diabetic be put on a meat-fat diet and the 24-hour urine of the second day be properly collected, the discovery of 3.65 gm. of dextrose to 1 gm. of nitrogen signifies a complete intolerance for carbohydrates and probably a quickly fatal outcome. This is the fatal ratio. A lower ratio between dextrose and nitrogen means some proteid sugar may be oxidized. Such a tolerance for sugar may be increased on a meat-fat diet, so that the dextrose-nitrogen ratio fall or the sugar in favorable cases may entirely disappear from the urine. The sooner sugar appears in the urine after the accident, the more favorable is the prognosis in traumatic cases.

Traumatic Cerebral Diabetes.—In the course of treatment of a patient with traumatic cerebral diabetes, an opportunity was offered for studying an unusually interesting phase of this subject. The data derived in a careful study of this case are so suggestive that, although the work is not yet complete, they may be of use to further research if the results are indicated at the present time.

E. M., aged 16, Hebrew, family and personal medical history excellent, a typic Chicago ooy of good habits, energetic, high-spirited and rosy-cheeked, fell down a 12-foot elevator shaft on December 10, 1901, at 6 P. M. He struck the floor head first, excoriating surfaces about two inches square over the right frontal and about an inch square over the right malar bones. The boy was unconscious for an hour. He was then taken home where he remained in a stupified state for 72 hours, during which time he was afflicted with hematuria, hematemesis and complete enteric inertia. He had no bowel movement until this was forcibly induced on the fourth day after the receipt of injuries.

Examination on the day of injury showed all reflexes normal. The abrasions on the forehead and face were so slight they needed but little attention.

Owing to the presence of hematuria, I called for a specimen of urine and obtained about 4 ounzes, voided about 4 A. M., December 11 (less than 12 hours after the fall). Analysis showed: Specific gravity 1,036; sugar, albumen and blood present. Daily urinalyses showed sugar present until December 21, when specific gravity was 1,030, but no sugar and minimal trace of albumin. From this time on there was a gradual decrease in specific gravity until on December 29, 1901, when it registered 1,020, with no more sugar nor albumin. Numerous tests since revealed sugar in quantities varying from a minimal trace to 7 per cent.

On December 16, the patient complained of loss of sight in the right eye. My examination on that date could elicit no pupillary reaction. (It should be mentioned that there was at no time very much edema, not so much as in the ordinary "black eye.") An eye wash was given to alleviate the burning sensation and slight conjunctivitis.

Noting no improvement in sight I called Dr. Henry Gradle in consultation, December 18. The specialist's findings were: "The right side swollen and excoriated, but no hemorrhage. Immobile pupil. Ophthalmoscopic findings negative." "January 10, 1902, beginning atrophy of optic nerve. February 8, distinct but incomplete atrophy of optic nerve." At present complete atrophy of optic nerve.

The patient recovered sufficiently, about 60 days after the accident, to take a light position as errand boy. He remained employed thus for almost two years.

On April 11, 1904, he called on Dr. Karl Herz, complaining of polyuria, debility, emaciation, and great depression.

Dr. Herz was kindly supplied the following notes: Urinalysis at this time showed 7 per cent sugar. Patient passed 7 to 30 pints of urine in 24 hours. Examination disclosed absence of pupillary and patellar reflexes; pulse was subnormal, 60 most of the time; no hyperesthesia, no anesthesia. Bulimia was marked, though replaced by anorexa at times. Furunculosis was distressful, especially on the posterior surface of the neck and on the lower maxilla. These furuncles would suppurate two to three weeks at a time, when there would be a persistent rise in temperature from 1° to 2°; otherwise the temperature was always normal.

The prognosis is gradually becoming graver.

Prophylaxis and Therapeusis.—The diet in diabetes should be adapted as much as possible to the individual case. An increase in fat may be as important as a diminution in starch. The weight and general condition of the patient are of more importance than the amount of sugar in the urine. Obeisity should be treated on account of the danger to the heart.

The daily output of urea as well as of sugar, should be tested. When the urea percentage is high, even with the disappearance of sugar, the patient should be treated accordingly. The free use of codliver oil with pepsin and bismuth is indicated in such cases.

Of the various forms of treatment, the dietetic is the most satisfactory. Mossé,[18] in 1892, found potato starch can be taken in larger quantity than is generally used, 16 to 24 per cent starch, with marked amelioration of symptoms He substantiates this view by his experiments at Johns Hopkins.

Von Noorden[19] emphasizes the fact that patients who have for a certain time been on a diet containing no carbohydrates often acquire a tolerance of the elements, and excrete much less sugar after a return to carbohydrates than they did before. The author[20] does not claim his oatmeal diet is a cure-all any more than the milk diet of Winternitz, or the potato diet of Mossé.

Hart[21] recommends the usual medicinal treatment in cerebrotraumalic cases of diabetes. In cases of hematoma, hydrocephalus, cerebral abscess, etc., surgical procedure is necessary. Moderate nerve strain, exercise short of fatigue, and change of climate are also favorable in therapeusis.

Thompson[22] states that before drowsiness begins, the urine often deposits an enormous number of peculiar-looking casts. To postpone the wellnigh inevitable death in these conditions, he relies on what he terms the most trustworthy diuretic we possess, namely, prolonged intestinal irrigation with hot normal saline solution by means of Kemp's rectal irrigator. Hypodermic injections of .45 gm to .91 gm (7 gr. to 14 gr.) of the camphor in sterilized almond or olive oil answer best to sustain the failing heart, while diluted milk, holding all the sodium bicarbonate the patient can take, is in his estimation, the only recourse left for food. Thompson believes some of the fatal poison could be washed out if we could bleed the patient freely and transfuse an equivalent amount of normal saline solution.

Considering that today we are merely at the beginning of knowledge concerning the pathologic processes associated with diabetes, and that we shall not obtain a clearer and more accurate pathologic picture of the disease until the physiology becomes more validly established, we cannot as yet formulate any definite and certain method of pathogenesis; hence, the therapeusis must remain chiefly empirical. We can do but little in the way of prevention. In considering the etiology of this disease, we can safely say that as human life in civilized regions tends to become more complex, the struggling for existence more severe, competition of all kinds, especially among brain-workers, more keen, we must recognize nerve over-strain as one of the predisposing causes of diabetes.

That traumatism, notably cerebral traumatism, may be an important factor in the etiology of diabetes, the independent experiments and careful observations of various investigators tend to prove. It is true that this source of diabetes is as yet little understood and scarcely recognized; but when we study the amount of evidence which is now generally being discussed in our journals, we are prone to lay great strees on traumatism as a factor in the etiology.

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THE AUTOMATIC DIAGNOSTICIAN.

By A. H. Southwick.

When a lad the doctor had been called a mechanical genius. He was forever tinkering with wheels and screws and rivets and things. In fact, some of his companions used to call him "wheels," which term, we are informed by noted alienists, if not synonymous with "genius" is close enough to express the idea. When he became a doctor it is not impossible the world lost a first-class machinist. As the data for judging whether or not the world gained a first-class doctor when he graduated are not readily at hand, it would be idle to speculate about it. Be that as it may, after years of study and work he invented the "antomatic diagnostician," which if it does not rank with Harvey's and Jenner's discoveries and the discovery of appendicitis, at least crowds them a close second.

As the doctor emerged from his office he bore in his hand an oblong leather case with a brass clasp, and stepping into his auto sped away. Arriving at the number from which he had received the call, he carefully lifted the oblong leather case with the brass clasp and made his way to the bed-side of the sick man.

"Hello, Doc! am I very bad?" was the greeting from the patient.

"It's likely you wish to inquire if you are very ill: we will shortly ascertain," replied the doctor depositing the oblong leather case with the brass clasp on the floor.

"I feel like thunder," continued the patient. "Vomited a lot of yellowish, greenish, bitter stuff; had an awful headache, just like gouging my eyes out. Then I had to vomit. Couldn't keep anything on my stomach, not even clam chowder. I guess I'm about all in. What do you think, Doc?"

"We will now determine exactly what your trouble is. This instrument thinks for me," answered the doctor.

"God!" said the patient.

From the oblong leather case with the brass clasp the doctor carefully lifted the automatic diagnostician, a complicated combination of tubes, bulbs, balls, thermometers, gauges, etc., all connected and evidently constructed to operate correlatively.

Ordering the patient to lie flat on his back, the complete apparatus was carefully adjusted over him, each bulb, ball, thermometer, bearing or what-not being placed in relation to the patient's anatomy best adapted for receiving results.

"You will lie perfectly still and think of nothing," said the doctor.

"All right, Doc," said the patient. "I'll not forget you if you pull me out of this."

The respiratory mouthpiece was carefully adjusted, rendering further conversation impossible. Then the doctor adjusted his glasses and scanned the readings on the large dial-plate of the diagnostician. The indicators flew around in lively fashion, giving the following readings: Pulse 79—full. Temperature normal. Respiration 18. Transpiration excessive. Tongue foul; bowels constipated—17,486,000 bacteria, made up of 47 varieties, in colon. Pancreas congested. Area of liver dulness enlarged.

"Ouch!" said the patient blowing out the respiratory mouth-piece. "What in time is that boring into my leg?"

"Be quiet, sir. I neglected to tell you that this is only a needle prick for the blood count. It will not hurt much. Ah! here it is now," and the doctor read: "Leucocytes and red corpuscles normal. Widal negative."

"Say, Doc," asked the patient at this point, "How much does it cost so far?"

The doctor rubbed his chin reflectively and said: "If you will place a dollar in the slot of the apparatus we can then proceed."

"All right. Please hand me my trousers," and being handed the bifurcated garment the patient fished out the coin aud put it in the indicated slot. There was a buzz, a rattle, a snap, and a card came out on which was printed: "Acute bilious attack. Chronic irritation of liver. Chronic constipation. Autotoxemia.

The doctor's face cleared as he read the card. "Just as I expected," said he.

"How is it, Doc, all right?" asked the patient.

"Why, I think so," said the doctor. "With certain mental reservations, which are the inalienable right of every doctor who has practiced more than a year, I think I may venture the statement that we know exactly what ails you, thanks to this wonderful instrument."

"Well, what can we do for it?" asked the patient anxiously, thereby establishing a community of interests between the machine, himself and the doctor, highly creditable to the doctor.

"If you will place another dollar in the slot I think we may proceed along ethical lines."

"Very well, hand me my trousers again," and the patient extracted another dollar. After the buzz, the snap and the rattle another card came out.

The doctor read and swiftly prepared the following: "Calomel and pydophyllin, $\frac{1}{6}$ grain of each every half hour till six doses are taken. Follow in the morning with a tablespoonful of phosphate of sodium in hot water. Repeat two nights, then every third night bilein and pancreatin comp., two half hour after meals."

As he folded and replaced the automatic diagnostician in the oblong leather case with the brass clasp, the doctor said:

"It is an encouraging fact that in some cases treatment has kept pace with modern expert diagnosis. In your case the medicines used might be taken by some to indicate that treatment had not improved during the last thirty years. Such, however, is not the case. The medicines, though old, happen to be all you require. Tomorrow noon you will feel weak and badly. In the afternoon you will feel much better. The next morning you will be as good as new."

"Jes so," said the patient. "Hand me my trousers, Doc."

"I beg your pardon," said the doctor with stiff dignity, "The fees are all paid and I will now bid you good day." And he departed, carefully bearing the automatic diagnostician safely packed in the oblong leather case with the brass clasp.—*American Journal of Clinical Medicine.*

THIS HALF-FINISHED HUMAN RACE.

By Herbert N. Casron.

Here is the secret of many mysteries—the fact that the human race is "under the head of unfinished business."

Man is like a statue half cut from the marble. He is half art and half raw material. His body is an unsorted heap of things that are ussful and things that are outgrown; and his mind is a medley of instinct and reason.

What nature did for man, and what man has done for himself, have been equally incomplete and blundering. The fact that childbirth is painful and that cancer, in its first stages, is not, shows how stupidly Nature can arrange some of her "laws." The persistence of corns on booted feet proves, too, that Nature can be absolutely asinine in some respects.

Is not every human body half a machine and half a museum? Part of it helps and part of it hinders. Some organs, like the nose, are improving; some, like the toes and the wisdom teeth, are degenerating; and some, like the vermiform appendix, are worse than worthless, unless Nature left them in as a special favor to modern surgeons.

So with the brain. In spite of the march of science there are enough half-made minds in the United States to make Senator Depew a statesman and Mrs. Eddy a millionaire. Men and women who wear clothes and live in houses can be seen studying "New Thought" and "Christian Science." and without any sense of shame apparently.

In spite of a thousand colleges and the vast knowledge-harvest of the centuries, thousands of living Americans are now trying to cure cancer by talk and to check consumption by conversation.

And, in spite of the long battle for democracy, the leaders of the people are still those who can fool and flatter the greatest number.

The fact is that we have not yet begun to scientifically study and recreate ourselves. No one has spent as much care in studying earth worms. Astronomy, we know, but gastronomy, as a science, is unborn. We can predict an eclipse, but not a stomach-ache.

Our colleges are still teaching predigested prejudice, under the name of education. We have no professors who teach courage, presence of mind, self-control or good citizenship. We have a Burbank who can educate the thorn from the rose, but where is the professor who can pluck greed and self-conceit from the human brain?

There are so many people in the world who make a living by the sale of ignorance that the real progress of the race is a slow process. Burbank would never have gotten the thorns off his roses if there had been a hundred thousand men who made a living by keeping the thorns on. So you will find back of every immortal prejudice the men to whom that prejudice is a means of support.

Some day, let us hope, the human rose will be finished and the scaffolding taken down. In those days we shall realize that Life is a little knowledge framed in mystery, and that it is better to study the picture than the frame. We shall know how glorious it is to find out How and Why—to face the lightning and tame it—to train out of ourselves the brutal instincts and slavish thoughts—to preserve until consciousness is no longer a jangle of conflicting sounds but a harmonious symphony.

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SENIOR NOTES.

"A little knowledge is a dangerous thing Larkin is an example of that"—Sknor.

"Salol is a darn good drug," This is a quotation from one of our teachers in Obstetries.

Larkin has a fine remedy for hyperemesis. "Old dandylion wine two years old at least, on chipped ice." Is it good for emesis following the large amount of alcoholic beverages?

Hartung was seen taking a nurse to lunch. Adolph is a sly old dog.

Sknor diagnoses death of a jetus at the fifth month by feeling no pulsation in the cord and tyen Armstrong advises us to wait three weeks after it is dead to be sure that it is dead. Better wait six weeks and have two dead.

Ziegler says he can sympathise with a woman in labor. He knows what she is suffering.

Raymond Essick regrets to report that one of the new arrivals at the maternity ward soiled his best white shirt.

Criticise the following.—℞. Hydragri Bichloride Mite gr. ii M. et sig. Divide in tab. no xii. One every two hours. —Schmidt.

Would the patient take the entire amount or die before doing so?

Dr. Alrutz:—"How is the Lachia?

Gearon. (After polpation and examining the breasts) "I guess its all right".

Conroy has a fine job. $50.00 per month or per haps.

Berry spent considerable time telling a classmate the blood and nerve supply of the pupil. But he admited his ignorance in regard to the remedy *par excellence* for obstruction of the splenic duct.

Geo. Doane and John Shroeder likewise bothered their brains about the same subjects. John said he would look it up.

Chas. Sknor would inject tuberculin into the back of a guinea pig because he said the pig could not scratch it.

Gerety dislikes to crib because it is not fair to the rest of the students. He is developing emphysema from blowing the foam off of the ice water in the lower hall.

Schmidt diagnosis rachitis by ausculting ripples with a stethescope.

About eighty students are taking the Senior summer work and though it is rather hot and there is considerable hot air delivered from the platforms they seem to enjoy the work. Some prefer to roast rather than to shed their coats, perhaps because of modesty, pink suspenders or other reasons.

JUNIOR NOTES.

There are about 20 members in the summer session. The new members to the class are Aron, Wyant and Miss Shutan.

All expectations of theatre parties, baseball games and trips abroad upon money refunded from last years laboratory deposits have been sadly shattered upon visits to the treasurer's office.

Murphy still claims that the probate is contiguous to the uterus on the south.

Byers says that for a good lather green soap is far superior to Williams' shavin stick. Knowing the formers reputation in tonsorial circles we would refer our readers to his advertisement elsewhere in this number.

Pugh recently startled the class by appearing in the classroom with a new notebook. His freshman book was lost in his hurry to pay his summer tuition.

The class has enjoyed visits from the Misser Davis and Kapsa also Turner and Levy. Miss Davis had a pleasant smile for each of the members, Miss Kapsa reported reading 513 pages of Osler. Turner appeared in disguise and Levy to advocate the use of towels interposed between ice bags and the cutaneous surface..

One of the seniors pleasantly entertained the class at one of our clinics with his full description of the attendant symptoms occurring during a submucous resection. His gift of speech could not have been acquired but some must be congenital.

During intermissions Hammerstrand entertains the members with "what happened at the county last night."

Dr. Lyman asserts that he had a patient better developed than any member of our class. Said patient was of the fairer sex.

Dr. Seiput is giving a separate course in the "essentials of correct grammatical experience". Edward is making excellent progress.

Wyant says he "shouldn't think not."

Banting is spending some time on Roosevelt's theory as to the etiology of gonorrhea.

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BATAVIA, ILL., JULY 20th, 1907.

THE QUESTION OF EXTRACTION.

By William J. Brady, D. D. S.

During the last ten years the subject of orthodontia has undergone the greatest change in practice and in the opinions thereon of any branch in the whole domain of dentistry, and incidentally more real progress has been made in the same than in all the centuries preceding. For the first time orthodontia has been investigated sufficiently to get at the facts concerning the causes of malocclusion and the real principles governing the treatment thereof. As might be expected, when foundation facts are once reached much previous theorizing has been undone and many speculative structures have been left with nothing on which to stand.

It has deen shown that much of the practice of the past has been founded on poor principles, or rather no principles at all, and that to secure permanent and satisfactory results many things must de done exactly the opposite of what was once taught and what is still widely believed. The practice of extraction in orthodontia is one of the things on which ideas have been exactly reversed by all those who have progressed far enough to understand how the mechanism of mastication really operates and how the development of the facial structures depends on the normal use of the teeth. The stand taken by the believers in modern practice is so different from the old and is maintained so vigorously that it deserves more than passing notice, especially when there is so much proof available on every hand of the correctness of the position.

While the suspicion of a fad may always be entertained about any radical idea, yet it should not be taken for granted that a new idea is wrong simply because it is radical when compared with what is usually believed. The usual and the old-fashioned are not invariably right, not by any means. Some of the most egregious blunders and most absurd ideas have passed for centuries as the eternal and everlasting truth. And usually when the truth arrived and was announced, and was demonstrated, and was proven again and again without doubt, it still was not accepted without misgivings and delay, all because "we had been taught otherwise by the fathers."

The announcement of the incorrectness of extraction in orthodontia has been received in much this way. It has been pronounced a fad, a one-man idea, a freak notion and a wholly wrong proposition, radical and not proven. But just the same it has been preached and practiced, and so many have not only found the doctrine good, but have *proven* it good, that it will not down nor be hid under a bushel. Extraction in orthodontia is undoubtedly wrong, and has been wrong all these years that it has been taught and practiced. And these statements are not based on mere opinion, but are susceptible of proof that ought to be convincing to any reasonable man, so convincing that he should not hesitate to accept the new and abandon the old without further ado.

It may require an absolute backdown to do this, and there's the rub with many. After having advocated extraction in many instances, mayhap in a dental journal or even in a book, it requires quite a stiffly starched spinal column to be equal to an absolute reversal of practice and opinion.

But what is a backdown compared to being right? "The wise man changes his opinions, the fool never." The true philosopher profits by the truth, wherever it comes from.

The men who advocate non-extraction in orthodontia did not come to that conclusion from traveling along a rose-strewn and perfumed path; neither was this wisdom gained by any special dispensation of Providence. Not exactly. The truth was finally forced upon them through the hardest of hard knocks; through dismal failures that made the heart sick, that lost business and made enemies, that shook the confidence of friends and colleagues. Dr. Edward H. Angle is one of the chief and foremost advocates of non-extraction, and no man ever traveled over a rockier road to gain this knowledge than did he. Others have experienced a few pile-driver jolts also, and the most earnest believers in non-extraction are those who have had the most trouble from extraction. The difference between them and other men is that they have perceived the cause of their trouble and have profited by their bumps.

Extraction for the so-called correction of irregularity is a snare and a delusion. It has done far more harm than good in the past, and will continue to do so as long as employed. We do not include such work as extraction of supernumerary teeth in this category, but we do include all other kinds, especially extraction to "make room" for teeth. Such extraction invariably lessens the room instead of creating more; the dental arch collapses still more than its original condition and the remaining teeth are worse crowded than before. This may not be apparent at first, but may be easily proven. Heaven knows, there are altogether too much proof of it already existing, due to the efforts of well-meaning but much-mistaken doctors and dentists.

Extraction destroys the correct occlusion of the teeth, the fact on which permanency of form of the dental arch depends. There is no time in life but when the teeth will move from their positions and change the form of the dental arch if said arch is not rigidly maintained intact. The dental arch follows the same laws of mechanics as any other arch; if one or more of the stones be lost from over a vaulted doorway or window, that arch will collapse, and there is no getting away from the fact. Extraction performs exactly the same office for the dental arch, and slowly but surely collapse of the dental structure follows. Nature does her best to correct the difficulty and patches up the best occlusion possible from the wreck, but it is never a good one and often not even a serviceable one.

Right here somebody always rises to say, "But what if the occlusion is not quite perfect? I have extracted in many cases, and the teeth finally shifted around till my patient looked better, and the occlusion was good enough for all practical purposes." This statement *sounds* well enough, but, Mr. Man, have you ever *really* investiged the conditions in one of these cases? Have you made models of the case year after year and noticed the change of form of the arch, and watched the gradual drift of teeth about, and studied to see how some received practically all the wear and others none, and then noted how first one tooth and then another was lost years before its time? Have you mounted models of the case in an anatomical articulator (not an old barn-door hinge) and tested the occlusion—not just the open-and-shut motion, but the incising and lateral motions as well—and noted that the shearing action was all but lost where your extraction occurred; than often the teeth on a whole side were not in contact at all upon the slightest sidewise motion, and that your seeming good occlusion was in reality no occlusion at all; all this and plenty more besides? No, my dear boy, you have not made these tests or you would not be against extraction with all your might, for you would see its evil effects beyond mistake and you would *know* that extraction was wrong, the same as the rest of us have learned from these very same things and many more like them.

No one need doubt in the matter of extraction, nor take anyone's word in the case, for anyone who cares may easily test it himself, and that, too, without doing harm. Mount a set of *good* models, in any case where extraction has occurred in an anatomical articular and begin. Don't use the common articular, for it is absolutely valueless in studying occlusion, or for any other purpose, for that matter. The mere striking together of the upper and the lower teeth does not constitute occlusion, not by a thousand miles. The operation of mastication involves the gliding and sliding of all the teeth over each other during all motions of the jaw, and occlusion includes every variety of contact possible between the upper and lower teeth, both while in motion and while at rest. It takes a real articular to represent this; the fake variety doesn't fill the bill.

It will be found that though there may be apparently good contact between uppers and lowers when in a state of rest, the moment the lower jaw is moved laterally there is failure to occlude properly in some particular, and usually in many particulars. And it is the proper interlocking and shearing during the *lateral motion* that holds the teeth firmly to their places, as well as performs the major part of mastication, two of the important factors connected with occlusion.

The experiment may easily be tried of extracting a tooth or two and then rearranging the teeth in a new occlusion. Mount up a set of models, more or less irregularly, but containing all the teeth, then saw off and lay aside a plaster tooth, say a first bicuspid, as is often sacrificed in the vain effort to correct through extraction. Then saw off a few of the others, as many as thought necessary, and wax them fast in new positions, moving them only such amounts and giving them such positions, as can be reasonably be expected through regulating. It will be found that it is a hard job to make any arrangement whatever whereby even a semblance to occlusion is gained, and utterly impossible to make an occlusion that performs any service upon the lateral motion. Such an occlusion would not hold the teeth in place, and such a case would not stay corrected when done. The experiment may be varied at will, leaving out first one tooth and then another, or "extracting" one from both upper and lower arches, or any other combination that is usually tried; but each and all will fail when the test of lateral motion is applied, and each would fail to be permanent if performed in actual practice.

There is neither mystery nor theory in the doctrine that extraction in orthodontia is wrong. Anyone may understand it and demonstrate it for himself. Its bad results have been demonstrated practically, alas! time and time again, and, it must be regretfully stated, it will be practiced yet other times by those who ought to know better. In years gone by people believed the world was flat—were certain of it—till one fine day a man completed a voyage entirely around it. All the previous philosophy and teaching concerning the world's flatness went out of date in an instant, yet they could not not give up the good old beliefs for a long time after. The question of extraction in orthodontia is exactly similar; it has been proven wrong. Don't be one of those who still believe the world is flat.—*Western Dental Journal*,

SCHOOL OF PHARMACY.

OF THE UNIVERSITY OF ILLINOIS.

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COLLEGE NOTES.

The forty-eighth annual announcement of the School of Pharmacy was issued July 1st. Notice is given that beginning with 1908 one year of high school work or its equivalent will be required of all candidates for matriculation. There are no changes in the faculty and the course of instruction remains practically unchanged.

At the recent annual meeting of the Illinois Pharmaceutical Association at Galesburg, Professor Day was re-elected secretary of the Association and Professor Hallberg was elected to honorary life-membership by unanimous vote. upon motion of Mr. S. C. Yeomans, President of the Chicago Retail Druggists Association.

Mr. Walter H. Gale, of Chicago, Mr. Edwards Patten, of Carbondale and Mr. George Cunningham, of Champaign were recommended to the President of the University of Illinois for the vacancy on the Advisory Board caused by the expiration of the term of W. H. Gale of Chicago. Mr. W. K. Forsyth presented the annual report of the Advisory Board. Mr. Andrew Scherer of the special committee appointed to arouse interest in favor of a state appropriation for the School of Pharmacy, reported the successful efforts of his committee. The attendance at the meeting was large and much important business was transacted. The Association will meet in Peoria next year.

ALUMNI NOTES.

W. R. Phillips '01 has bought Turnquist's Pharmacy at 22nd St. and Wentworth Ave., Chicago.

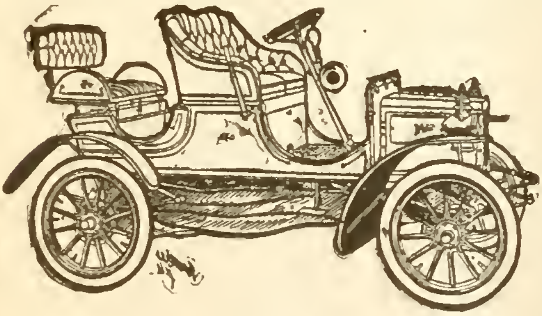
F. A. Crawford '06 is located in Oklahoma City, Okla. where he expects to engage in business on his own account.

George Eisele '07 has taken a position as city salesman for the H. K. Mulford Co.

George K. Thomson '07 was among the fifteen successful candidates in a class of forty-one who recently came up for license before the Colorado Board of Pharmacy.

W. P. Knoche '91 and N. George Fry '06 were prize-winners in the contest for indentifying the largest number of specimens of crude drugs at the Galesburg meeting of the I. Ph. A.

At the May examination of the Illinois Board of Pharmacy at Springffeld, J. H. Christmann '07 passed for registered pharmacist and J. R. Eddy, M. L. Leon, T. B. Powell, O. L. Steinkraus and F. Walczkiewicz, all junior students, passed for assistant pharmacist.



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THE IMPORTANCE OF HISTOLOGY.

By Grace Amadon, B. A.

Probably no subject in the whole gamut of the medical curriculum is so little understood, so much misunderstood, and yet of so great importance as histology. Few students get a working knowledge of it, and therefore few students like it.

Student No. 1 is afraid of the subject. He starts wrong, gets behind his class, becomes discouraged, and eventually tries only to memorize enough of the book to pass his examination.

Student No. 2 ignores the subject. Histology is all right for a laboratory man, but *he* is going to be a surgeon; he thinks that he will never need that knowledge at all, and feels abused that he has to devote to it any of his valuable time.

Student No. 3—and he speaks for the majority—does all the required work; he attends the lectures, mounts his laboratory specimens, and diligently studies his textbook. He learns to describe the various tissues and organs, and writes good examinations, in fact he gets a high credit. But he can't tell *liver from spleen under the microscope.*

There is one reason for all this failure. Histology is not a book subject. It is a microscopical study, and from this standpoint is unusually simple and easy to learn. Altogether there are only five different kinds of tissue which at the most consist of about twenty cells and three or four fibres, and if a student will make it his first business to master a few tissues under the microscope at once—the lymphoid cell mass, stratified squamous epithelium, involuntary muscle, fibrous connective tissue, etc., he will not only soon learn to demonstrate his own specimens, but he will find more in them than he could ever read in a book. For there is much that has never been described.

And it is for this very reason that histology is such a continual source of inspiration, there is so little of it known, especially of human histology. In the laboratory one has studied a little bit of cat and dog, some more rabbit and guinea-pig, a few chicken embryos, a rat or so, all of which are more easy to obtain in their normal condition than the human, and therefore the normal human tissues have been neglected.

Furthermore the main effort of microscopical study and investigation has been put upon diseased human tissues of which we have abundant material, and consequently there has developed a large number of pathologists who cannot diagnose normal tissue, and who for this very reason frequently make wrong pathological diagnoses.

A glance through the various histologies will show that the photographs and drawings are mainly from the small animals. In fact some of the books have a general appearance of comparative histology and are readily used in our veterinary colleges, there being no English text-book on the comparative study.

Then again, the ordinary collection of histological specimens does not emphasize the most common needs of pathology. The generative system in the human is seldom demonstrated in detail, and yet pathological specimens (pus, curettings, tumors, etc.) from this tract are almost the first to fall into a doctor's hands.

The columnar epithelium of the fundus of the uterus has a distinctly purple-staining protoplasm, and the oval, elongated nuclei occupy a large portion of the cells. In striking contrast is the pale, cloudy columnar epithelium of the cervix, whose nuclei are of irregular triangular shape and are situated at the base of the cells, leaving a broad band of protoplasm facing the uterine cavity. The external os and vagina are lined with stratified sqaumous epithelium, which, when desquamated, shows large cabbage-leaf cells with small, deeply staining nuclei. These cells are not characteristic of the male generative tract; they are larger than the transitional cells of the bladder or urethra, and their nuclei are smaller. Consequently pus smears from a uterine or urethral discharge will often give evidence of the sex.

The uterine tissues undergo more striking physiological changes in a short time than any other tissues of the body, and these have corresponding microscopical oppearances which must be learned and demonstrated before the pathological lesions can be understood. Many of the uterine carcinomata are confusing. They often show both gland-cell proliferation and apparent squamous epithelial-cell nests, which may be simply a variation in growth of the columnar cells, and do not necessarily spring from the cervix.

Uterine curettings offer many kinds of tissue for study, and in order to diagnose the condition in the uterus from which they have been taken, we are absolutely dependant upon the knowledge of histology, both in the adult and the embryo. In these curettings we may find normal glands, the glands of menstruation, decidual glands, hypertrophic glands, adenomatous and carcinomatous glands. Portions of an embryo, the amoiotic sac, or chorionic villi may lead to a diagnosis of pregnancy. Herzog recently made a very brilliant diagnosis of early pregnancy from the presence of the placental blood-spaces and trophoblast in a section of uterine clot. Upon making further sections he found an ovum smaller than Peter's—one showing the embryonic shield still open and the blood-vessels just beginning to form. The careful diagnosis of his first section stimulated him to cut three hundred more of which not more than eighteen made up the ovum.

And while there is such need to study normal human tissues, at the same time the medical student is dependent upon comparative histology also, and that far more than the veterinary student upon human. Many of the domestic animals exaggerate structures that are uncertain or rare in man, not only normal but pathological as well. In human blood the mast cell is hard to find; every two or three fields of fowl's blood will show one. The eosmophile has special characteristics in the horse, its granules are as large as blood platelets, and the cells are much more numerous than in the human.

The spleen of the horse also has its features. The blood vessels are ensheathed with lymphoid cells which in microscopical sections appear as tubular massss along the wall of the vessel. The same formation occurs in the guinea-pig, but in man the cells collect in round or oval masses only at certain intervals along the artery. An understanding of the behaviour and growth of the lymphoid cell will enable one to determine how it will act when forming a tumor or taking part in an inflammation.

There are many tumors among the lower animals. Eighty per cent of the best breeds of the dog die from sarcoma. They also have an infectious granuloma which attacks the generative system. These tumors have been transplanted from one animal to another, and although no specific cause has yet been discovered, they have made possible new investigations regarding the nature and growth of tumors in general.

Embryological sections present many striking pictures of development. We see columnar-celled glands forming from squamous epithelium, and large squamous-celled organs such as the liver from columnar epithelium. In an embryonic omasum the stratified epithelial cells of the mucosa lie vertical to their basement membrane, though dovetailed together as in other stratified squamous epithelium.

The more we study the life history of cells in general the more clearly we shall understand how they behave under abnormal conditions. It is time to lay our book on the table and "study the fish"!

ENDOTHELIOMA OF THE OVARY.

With Report of a Case of Hemangio-Endothelioma Perivasculare

By Channing W. Barrett, M. D., Chicago

Abstract from "Surgery, Gynecology and Obstretrics", May, 1907.

The purpose of this paper is to review the literature of Endothelioma of the ovary, and to report a case studied by the author. If, in addition to any light this study may throw upon the subject, anything is developed which aids to a more definite and accurate classification of endothelioma in general, or if any new observation is made as to origin and mode of development, it will have served a double purpose. I have felt the more impelled to this work by reason of the scant attention which has been given the subject in American and British literature. Only five cases have been reported in the English language, this making the sixth.

Tumor growth is but the outward or gross manifestation of cell activity and arrangement. The character of the tumor, as well as its classification, depends upon the histogenesis of the cell, and its morphology and arrangement when given, by some unknown cause, an impetus to multiply. When the exact etiology of tumors is known, less stress may be laid on the histogenesis of the cell as a means of classification, but at present our conception of any tumor is based largely upon the origin and characteristics of the cell from which it sprang. Embryologically, the so-called endothelial cell is conceded to be of mesothelial origin, but in the *gastrula* stage of the ovum, only the *ectoderm* and *entoderm* exist. Largely from the entoderm, but possibly somewhat from the ectoderm, according to Minot, Heissler, Böhm and others, the mesoderm develops.

These authors describe the cœlom as being formed by clefts in the mesoderm, and this later forming the large body cavities. The bordering mesenchymal cells become flattened and epithelial-like, to form the lining of these cavities. The investigations of Budge and Sala also show that lymph-spaces and vessels are created by fissures in the mesenchyme, the most interal cells of which form the endothelium.

Von Recklinghausen published his discovery of the lining cells of the lymph-vessels in 1862. No doubt due to the poorer staining qualities of the endothelium of the blood-vessels, they were discovered later. In 1866, he first used the term "endothelium," and employed it to designate the cells lining all body cavities not admitting air. Later, Ranvier extended its use to include the cell lining lung alveoli. Eberth applied the term "perithelium" to the outer endothelium-like membrane of the blood-vessels of the brain and cord and other so-called perithelial organs, of which the ovary is one. This does not refer to the perivascular lymph-spaces of his, which are still outside the perithelium.

Sala's researches indicate the practical identity of the endothelium of the blood and lymph-vessels and that of serous cavities. Delamere is of like opinion. Minot distinguishes between the two by calling the former endothelium and the later mesothelium. In his later work he speaks of the epithelium of the pleura, pericardium and peritoneum. He is not alone in this. Szymonowicz and Stöhr, in fact, call all cells-lining, blood- and lymph-vessels, bursal and articular sacs and serous cavities, *epithelial* cells.

Heidenhain, Hamburger, and Ranvier show that the endothelial cells possess a secretary function and take part in the elaboration of lymph, secrete hyaline and amyloid substance and mucin, thus further simulating the epithelial cell. Orth has found the giant cells developing from the peritoneum, and as pointed out by Zeit, Borst and others, the endothelial cell is capable of producing connective tissue, granulation tissue, epitheloid cells, and inter-cellular cement substance. This, then, is the character of the cell with which we are dealing in endothelioma—of mesodermic origin, a modified mesenchymal cell, such as forms the connective tissue around it, retaining its ability under certain conditions to behave like a connective tissue cell, yet morphologically like an epithelial cell, acquiring at least some of the functions of the epithelial cell.

A priori, we would say that such a cell would produce a tumor of mixed characteristics. Investigations have substantiated this reasoning. The efforts of authors to recognize the histogenesis of the cell and the tumor have given us such nomenclature as endothelial sarcoma (Fischer and Cramer), sarcoma endotheliale (Rindfleisce), sarcoma plexiforme (Ewetzký), alveolar sarcoma (Billroth), angiosarcoma (Waldeyer, Kolaczek and Hippel).

Their efforts to take cognizance of its morphology give us epithelioma of serous membrane (Robin), endothelial cancer (Schulz), carcinoma endotheliale (Hansemann), adenoma endotheliale (Hansemann.)

Recognition of the histogenesis and morphology have led to an endless variety of names, such as connective tissue cancer (Neumann), sarco-carcinoma (Böhme), carcinoma sarcomatosum (Sattler), carcinoma sarcomatodes endotheliale (Hansemann), etc.

It is doubtful if this wilderness of classification can ever be cleared up until pathologists recognize that they are dealing with a cell that is not wholly a connective tissue cell or wholly an epithelial cell, but rather one which has characteristics entitling it to be considered a distinct cell, and that therefore its tumors are entitled to separate classification by reason of the polymorphism which they show as an inheritance from the cell.

Borst has led the way by defining the endothelial cell as a morphologically and functionally modified connective tissue-cell, specially differentiated as a distinct cell, and includes under endothelial cells all those lining blood- and lymph-vessels, lymph-spaces and serous cavities. Zeit is of like opinion, and in a discussion of this subject, classifies tumors as follows: First, epithelial tumors (malignant and benign); second, endothelial tumors; third, connective tissue tumors (benign and malignant), fourth, teratoid tumors. This would seem to lead to greater uniformity of classification of the tumors under discussion.

The origin of these tumors later known as endotheliomata. was first pointed out by Koste. This was verified by Recklinghausen. The first detailed description of these tumors was made by Kolaczek. He collected sixty observations made upon tumors arising in blood-vessel walls, none of which, however, referred to the ovary. The term *endothelioma* was first used by Golgi in 1869, since which time it has come into common although not universal use, to designate tumors growing from endothelial cells. The term *perithelioma* was introduced by Amann to signify tumors arizing from the cells which Eberth has termed perithelial cells.

Leopold, in 1874, reported the first case of this class of tumors of the ovary, but applied the name "lymphangioma cystomatosum." Five years later, Marchand reported two cases. A case here and there was reported during the next decade. Pick, in 1894, made the first detailed study of this class of ovarian tumors, and divided them, from a morphological standpoint, into three classes: First, those having an alveolar arrangement; second those having a columnar arrangement; third, those having a tubular or glandular arrangement. My specimens, as well as others, show that these may be simulated in one tumor. Amann (Jr.) during the same year, made a careful study of the subject and collected nine cases from the literature, to which he added five cases of his, the largest number reported by one writer up to that time. Later in the same year, Cullen gives us the first case reported in the English language, to which he applies the name angiosarcoma, saying that the tumors are frequently called endothelioma.

In 1896, Guffroy reported one new case and enumerated those found in the surgical literature, making sixteen cases. Pollak, in 1898, made a critical study of the subject and reports one new case. He was inclined to reject Müller's case but accepted as true cases those of Leopold, Marchand I. and II., Ackerman, Olshausen, Flaischlen, Eckardt, Pormorsky. v. Verlits, and v. Rosthorn. This enumeration overlooks Amann's cases and those of Cullen and Pick. In

1899, Henrotin and Herzog reported the second authentic case in this country.

Three years later, Apelt reviewed the subject and found some cases which had been previously overlooked, which, with his own case, nearly doubled the previously reported cases. Since Apelt's study of the subject, notable contributions have been made by Stauder, Papaioannou, Barbour, Glockner and others. Stauder, writing on the subject of ovarian sarcoma, cites six cases, but the report on these is rather brief and incomplete. Many European writers have enriched the literature with a report of cases during the last five years; these, together with one reported in America by Lincoln, making about one half of all cases reported.

Following in chronological order in the original article was a list of all the cases found in literature to the present time. The article was illustrated with colored plates and half-tones of microphotographs, and a complete bibliography followed the text.

To these cases found in literature I wish to add the following case, occurring in my consultation practice, for which I am indebted to Dr. F. E. Stevens, of Bristol, Wis.

History of Patient. Mrs. N. B., age 37, admitted to hospital June 19th, 1902. Father and mother living, aged 87 and 71 respectively. Three sisters living and well. The family history entirely good, except that one uncle on the father's side died of cancer (supposed). Previous health and strength have always been good, except the patient has had attacks of measles, mumps, and a severe attack of typhoid fever five years ago. First menstruation appeared at the age of 11, 28-day type, regular. Painful until the first child was born. Three children, 10, 4 and 2 years of age. Labors difficult, last two deliveries instrumental. Had moderate lacerations and complains of having had some prolapse of the uterus for years. No history of other pelvic trouble until the onset of the present one. Patient began to complain of a weighty, distressful feeling in the pelvis six weeks ago, but continued her usual household duties and suffered no extreme pain. She thinks she caught cold at the time of the menstrual period six weeks previous. During menstruation two weeks previous to entering the hospital, had severe vaginal irritation and thinks she had inflammation of the vagina and uterus. Pain severe. The pain over the abdomen has persisted, most marked in the right inguinal region. One month previous to admittance had severe diarrhea and clay-colored stools: no nausea at any time. During the onset of the pelvic trouble, two weeks previous to admittance, she was examined by Dr. Stevens, who found moderate thickening and considerable tenderness in the right side of the pelvis, seeming to involve the ovary and tube. During the intervening two weeks between this and admittance to the hospital, she was repeatedly examined and the mass was found to be enlarging rapidly, to such an extent as to suggest an inflammatory mass. The pelvic pain increased rapidly and the administration of anodynes became necessary.

Examination verified the history of perineal laceration and found a left inguinal hernia. The vagina appeared normal, the uterus slightly enlarged and crowded to the left and a large tender mass was made out in the right side of pelvis. Chart shows the pulse ranging from 100 to 104; temperature 98½ to 101.2 before the operation. The blood examination was as follows:

Erythrocytes, 4,200,000.
Leucocytes, 7,800.
Hemoglobin, 80 per cent.

Urinary examination showed no albumin, no sugar, no blood, a few hyalin casts, urea 1.4 per cent.

The Operation. Under chloroform and ether anæsthesia the patient was subjected to a cœliotomy, median incision. A moderate amount of dirty sero-hemorrhagic fluid escaped. The peritorium was injected. Tumor mass in the right hypogastric region. Omentum and other surrounding structures slightly adherent to the tumor. Tumor attached to the posterior surface of the right broad ligament, and seeming to replace the ovary. All adhesions were separated without difficulty and the tumor was lifted out of the abdomen, when, as a result of the great friability, it broke from its attachment to the broad ligament and the uterus. Infiltration had involved the tissues beyond the point of rupture, and it was thought best to remove the uterus, the broad ligament and the opposite ovary. Before the operation was completed its futility was apparent. Nodules the size of a pea were found low down on the perimetrium, the peritoneum, the pouch of Douglas, and close search revealed scattered nodules upon the peritoneum of the mesentery and the small bowels. The blood vessels so much in evidence, a soft, yet friable tumor, the rapid onset of symptoms, together with the metastases found, led to the conclusion that an early return was to be expected, and in this we were not mistaken.

The operation was well borne and the patient made a usually good recovery from the operation itself. She was never comfortable, however; always complaining of pain. always wanting morphine. She left the hospital four weeks after the operation, but during the latter half of her stay in the hospital she developed conditions which were remarkable for their rapidity. She complained of the hernia giving her trouble, which it had never done while lying in bed. Examination revealed a walnut-sized mass of tumor growth in this region. The nurse reported a sanguinous-purulent discharge from the vagina. Examination revealed a large ulcerated condition in the vagina. A persistent cough developed, suggesting metastases.

I am indebted to Dr. Stevens for the information regarding the patient after her return home. The pain increased rapidly, making the use of opiates necessary. Tumors varying in size from that of a pea to that of a walnut appeared in the vagina, the inguinal region, on the chest and legs. She died two weeks after leaving the hospital. No necropsy was obtained.

THE GROSS TUMOR.

The specimen is an irregular ovoid with a constricting ring marking the external junction between a larger, soft cystic portion, rounded, smooth and degenerated, and a smaller portion solid, friable and irregular. The tumor measures 15x10x8½ cm. and weighs 750 grams. At the smaller end the tumor presents a nodular appearance and a ragged area, where it was evidently attached. The remaining portion of the tumor presents a dull, smooth or slightly roughened surface, in color it varies from a pale, waxy yellow to dull, dirty gray, glistening gray in areas, reddish brown spots and streaks, bluish-gray and pinkish areas, and dark blue and red streaks marking the line of blood-vessels. Hemorrhagic areas of degenerated blood are seen here and there. Cut longitudinally the tumor presents two distinct portions, the larger rounded encephaloid portion of the tumor is seen to consist of a capsule 2 to 8 millimeters thick, enclosing the soft, jelly-like contents, which, at the distal portion was broken down, but grows more solid toward the junction of the two portions of the tumor, and becomes adherent to the capsule. A distinct trabeculum of closely packed fibrous tissue separates the two portions of the tumor, and is continuous with the inner portion of the capsule of the degenerated portion. The solid part of the tumor consists macroscopically of a capsule friable in places, which is continuous with the outer portion of that covering the degenerated part of the tumor. Here and there hemorrhagic spots and areas are seen on the cut surface. The large part of the cut surface presents a light or dark grayish appearance and a slightly roughened surface, and the structure is of a spongy consistency.

MICROSCOPIC EXAMINATION.

The microscopic findings are based upon observations made upon numerous slides cut from the junction of the solid with the cystic or degenerated portion, and from the capsule of the degenerated portion. Specimen was preserved in 4 per cent aqueous and alcoholic solution of formaldehyde. Specimens were imbedded in celloidin and stained with eosin and hematoxylin and Van Gieson. The tumor was found to consist of a connective tissue stroma, an intermingling of a variable amount of muscle cells, a rich supply of blood-vessels, blood outside the vessels filling large and small spaces, tumor cells filling large and small areas, and lastly, degenerated product. The capsule of the degenerated portion of the tumor is found to consist of an outer firm connective tissue zone, and an inner vascular zone of tangled, engorged blood-vessels, surrounded by connective tissue. The same capsule is continued over the solid portion of the tumor, but with a less marked vascular zone, except in areas. The capsule is interwoven with the deeper structure. No epithelial cells are found covering the tumor. The solid mass is made up of connective tissue stroma and tumor cell areas, about evenly divided. No ovarian parenchyma is seen. The blood-vessels and blood extravasations are a marked feature of each of these areas. Arteries, veins, and capillaries are seen in abundance in the connective tissue areas; highly vascular surfaces are noted in which occlusion of blood-vessels and extravasations are observed. In these areas fibroblasts are numerous. Different fields are here seen in which the red blood cells have an arrangement very simular to that of the tumor cells in other areas.

THE TUMOR AREAS.

The characteristics of the tumor areas are marked cell proliferation, arrangement of cells around blood vessels, obliteration of blood vessels, extravasation of blood and degeneration. The slides cut from the tissue at the junction of the solid and degenerate portion of the tumor show a fibrous separation of the two portions of the tumor. The dead tissue fails to take the stain, but shows faintly occluded blood vessels, cell mantles, and extravasated blood debris. Advanced live areas show large extravasations, with here and there large or moderate sized blood vessels, seen in cross and longitudinal sections, with intima intact; with cell mantles 8 to 10 or more cells in thickness. All connective tissue, small blood vessels and small cords of tumor cells have disappeared. Other fields show tumor cells apparently in alveoli, in thick cords and single chains. Cords having a tubular appearance are also seen.

The morphology distinctly resembles carcinoma in places. Other fields resemble sarcoma. The perivascular arrangement seen in advanced stages suggests strongly hemangio endothelioma of the perivascular variety. A careful search has been made for earlier changes to clear up this apparent polymorphism. Areas were found in which fingers of cells were reaching out into new tissue; in some cases chains of cells were found following up minute blood vessels. At first these observations indicated that the cells were intravascular, and this led to greater confusion. It was difficult to reconcile the apparent intravascular origin with the perivascular arrangement seen in advanced stages. I have been fortunate in finding a series of slides which show the perivascular beginnings of these cells, and which explain the alveolar arrangement which makes the tumor simulate a carcinoma, and which also demonstrates the manner in which the large blood spaces are formed. Fine cords or single chains of tumor cells have been observed, radiating from blood vessels between which are distinctly noted the involuntary muscle fibres branching off from the larger vessel which is seen to be the remains of an obliterated arteriole, showing the perivascular nature of the growth, even in the beginning.

It is here interesting to note that the rod-like neuclei of the involuntary muscle cells of the vessel are seen to have their long axes arranged parallel with the long axis of the blood vessel, contrary to the usual arrangement.

Numerous observations demonstrate that the alveoli, which in places so simulate a carcinoma, are but the perivascular cell mantles thrown into alveoli by parallel and branching vessels, the remains of the vessel walls forming the apparent stroma throughout the field. Radiations of blood-vessel walls are seen branching from large vessel walls like the limbs from a tree. These vessels anastomosing throw the tumor cells into alveolar arrangement.

The tumor cell mantles form distinct cords if allowed to follow blood vessels for any distance without the vessel branching. Two or more of these running parallel sometimes simulate a tubular arrangement.

Areas are seen surrounded by blood-vessels with their cell mantles, with small vessels running out from the larger one, followed by the cell cords. In the center of the area, where the cell cords have not reached, the capillaries are seen distended with blood, and extravasation is marked. Other sides, cut deeper from the same block, show the tissue in this area dead, and a large space filled with tissue debris and extravasated blood. Thus do we see the origin of the large blood areas which form so prominent a feature of the tumor. New formation of blood-vessels, tumor cell formation along their walls, occlusion and obliteration of blood-vessels from encroachment of tumor cells, cutting off the nourishment to outlying areas, extravasation and death is the role that is enacted again and again. It is certain that this is what has occurred in the larger degenerated portion of the tumor.

THE TUMOR CELLS.

Not only in the arrangement of the cells does the tumor display its polymorphous nature, but in the cells themselves. They are distinctly outlined from surrounding cells, even groups of three or four cells standing out sharply when isolated by the stroma. They vary in size, in staining qualities and in amount of protoplasm, to such an extent that the extremes present fields of quite a different appearance. Areas are observed in which the tumor cells appear to be young and present a rounded or cubical or slightly irregular outline, which is seen distinctly in places, and lost in others by the crowding of the cells. These cells present sharply outlined non-vesicular or slight vesicular nuclei varying in chromatin and nuclear bodies, some staining very dark, some only moderately so. The nuclei are round or oval, or slightly irregular, and occupy a large part of the cell. The protoplasm stains slightly with eosin and presents a pinkish, glassy border around the nucleus. Here and there a cell is seen that has a small, deeply staining, bead-like nucleus, with a large amount of protoplasm. In the above described areas, the cells show much activity, and may be seen forming finger-like projections reaching out along blood-vessels in single cords or chains. Groups of only a few cells, or even single cells, are seen in advance of the column. In many places throughout the tumor mytotic figures are seen, but in these areas karyokenesis seems to be especially active. In tracing out one cell cord, mytosis was seen in many cells and two isolated cells were seen in advance, each showing cell division. In marked contrast to these areas are found other portions of the tumor made up of large, apparently swollen cells, with large, round, or oval viscular nuclei, taking a moderate or only slight amount of stain.

Here the cells contain a large amount of protoplasm, which in some cells stains well with eosin, while in others it reacts poorly to the stain. Granular appearances are seen in the protoplasm. Here great numbers of so-called Russell-Plimmer bodies are seen in such quantities and in such relations to cells as to suggest their being a product of degeneration. They are not seen to any extent in what seems to be the young neoplastic tissue. Here and there cells seem to have disappeared, leaving lumina. In some instances this is only apparant, close examination revealing translucent substance. These widely different pictures might suggest a mixed tumor, but we see fields where the two varieties of cells encroach upon each other, and sometimes see a strip of the lighter cells running across a field of darker cells, giving it a distinct milky-way appearance. We see also cells in gradations from one type to the other. When these larger, lighter cells are thrown into alveoli by branching blood-vessels, creating a plexiform endothelioma, they create a picture which could easily mislead one to make a diagnosis of carcinoma. These observations are the better interpreted when we remember that we are dealing with the endothelial cell.

The polymorphous character and arrangement of the cell, the cords and columns and the lumina, lead to the conclusion that we are dealing with an endothelioma. The numerous blood-vessels which are so marked a characteristic of the tumor, with the absence of a new lymph structure, the growth of the tumor cells along the blood-vessels, with no apparent tendency to depart from them, lead to the diagnosis of hæmangio-endothelioma. The arrangement of the cells into mantles for the blood-vessels with an intact intima distinguishes it as hemangio-endothelioma perivasculare. The numerous large areas filled with blood, and the large infarct which form a pseudo-cyst, indicate a marked degeneration. The rapid metastasis which has been detailed, prove the extreme malignancy of the tumor in this case.

FREQUENCY OF OCCURRENCE.

It is not to be supposed that this includes all cases seen or operated upon. Bonney, in 1904, and Kadygrobow, in 1905, describe one case each, which should be added to this list, but further than the authentic reference, the facts have not been at my disposal.

Seeger, in an inaugural dissertation, in 1888, made a study of 15 solid ovarian tumors, of which three were fibromas, four sarcomas, five carcinomas, and three mixed tumors, to which he applied the term carcinoma sarcomatosum. These I have not been able to prove.

Limnell, in giving statistics on fifty ovarian tumors, speaks of six per cent, or three, being endotheliomas, but no report of these cases other than the description of the specimens is found.

Mary A. Dixon Jones, in 1884, reported numerous cases of endothelioma of the ovary, but the pathology and opinions expressed are too vague to warrant any conclusions.

Many writers have included endotheliomas with their sarcomas, which latter show a percentage from two to ten per cent in the statistics of A. Martin, Shauta, Leopold, Schroedar von Braun, Olshausen, and Zangemeister.

Schroeder reports finding ten sarcomas and not a single endothelioma among 600 ovarian tumors.

Von Braun found four sarcomas and not one endothelioma among 81 ovarian tumors. Olahausen reports 293 ovarian tumors, of which 12 were sarcomas and one an endothelioma.

In the years between 1880 and 1893, 329 ovariotomies were performed in the surgical clinic of Heidelburg University. Examination of these specimens showed 33 to be sarcomatous. Zangemeister studied these as well as six other cases of sarcoma, not occuring during this time, and found only one case of the endothelioma. This makes a total of 65 sarcomas and two endotheliomas. Zangemeister collected 33 sarcomas in 329 ovariotomies, or ten per cent. If the six cases of sarcoma represented the same percentage, they would be found in sixty ovariotomies. This, then, would make a total of 1363 ovarian tumors, among which were two endotheliomas, or fourteen one-hundredths of one per cent. More malignant cases than benign would die unoperated, so that the real percentage would be higher than the enumerated percentage. We should remember that the above examinations were made at a time when endothelioma was not universally recognized, and not so frequently differentiated from sarcomas and carcinomas. I am convinced that should this number of 65 supposed sarcomas be subjected at this time to microscopical examination to determine the origin of the tumor, they would show a much larger percentage of endothelial origin. On the other hand, our list may include a possible case or two not sufficiently proven. I have not had access to the original report in some cases, but these were in almost every case reported as endotheliomas, or as sarcomas or carcinomas having their origin in the endothelium, according to the writer's conception of the classification.

If we make the classification according to the origin of tumor cells, namely:

Lymphangio-endothelioma intravasculare,
Hemangio-endothelioma intravasculare,
Hemangio-endothelioma perivasculare,

and endeavor to classify our cases, we meet with great difficulty. Cullen, Eckardt and others have used only two divisions, and in this classification the perivascular tumors have been classed at one time with the lymphangiomas and at another with the hemangiomas. This is the strongest argument in favor of the third division. Some have been content to make a diagnosis of "endothelioma" without further classification. This throws many cases into the doubtful class and renders it impossible to use exact figures to show the comparative frequency of the different varieties. But sufficient data is at hand to prove the greater frequency of the lymphangio-endothelioma. The perivascular tumor growing from the blood vessel is perhaps the least common, although its classification with the other varieties at times makes this less certain. Twelve undoubted cases of the perivascular variety have been reported, which, with my own, makes thirteen.

We find that many of our cases have been reported under the name of sarcomas; being called endotheliomas as a sub-class. Some have described carcinomatous appearances. Seeger describes three cases of "carcinoma sarcomatosum," not included in this list. When an unclassified disease presents points of similarity with known diseases, leading to its being called one and then another, and then requiring both terms to properly indicate its characteristics, it is well to look at the points of dissimilarity to see if it may not be a separate disease. Studied from this standpoint we find the endothelioma differing from carcinoma in the histogenesis and histology of the cell. The true alveoli are wanting. Apparent alveoli are formed by cells in blood- and lymph-vessels and by groups of cells separated by branches of blood-vessels. Another point of dissimilarity is the frequency of occurrence during early age.

It is dissimilar to the sarcoma in the character of the cell, and in morphology and in its tendency to follow blood- or lymph-vessels. One very distinctive feature of the endothelial tumor, and one in which it is dissimilar to either of the others, is its polymorphism. They do not correspond to our conception of either class of tumors. If we broaden our conception of these classes to include endothelial tumors, we can find no uniformity of opinion as to which class should include them; and thus confusion. I am of the opinion of Borst, Zeit, Gothe, and others that for these reasons, and the importance it may have clinically, they should stand in a separate class.

When our list of cases is studied to point out etiological factors, we find them wanting except in one particular, and this relates to age. The age is given in 80 of the 85 cases. The lowest age is 7 years, the highest 64—both Amann's cases. Leopold's case presenting the large tumor, was only 8 years of age. The average age for all cases is 40 years. The number occurring in decades is as follows.

From 7 to 10	3	From 40 to 50	26
" 10 to 20	5	" 50 to 60	16
" 20 to 30	12	" 60 to 64	5
" 30 to 40	13		

The number occurring during periods of five years after the age of 20 are as follows:

From 20 to 25	4	From 45 to 50	15
" 25 to 30	8	" 50 to 55	12
" 30 to 35	6	" 55 to 60	4
" 35 to 40	7	" 60 to 64	5
" 40 to 45	11		

This shows the greatest number of cases in the fifth decade—40 to 50, but if we compare the ten years from 45 to 55, we find that there is one more case than from 40 to 50. The number occurring from 45 to 50 exceeds by three that of any other five years. This is a carcinomatous age rather than a sarcomatous, although too many cases occur early in life to be exactly typical.

Heredity is not shown by our cases to have any considerable bearing upon the etiology, but Eberth and Spude have reported numerous examples in several generations of a family of mice.

ONSET.

We are surprised when we study this feature of the cases at the sudden onset. Schürmann records a case in which only two weeks had elapsed since the first symptoms presented.

Jonnesco's case first noticed a tumor one month previous. My case had had symptoms for only six weeks—marked symptoms for only two weeks. On the other hand, Velits' case had noticed a tumor for years; Zangemeister's case, three months; Rosenski's third case, seven weeks; yet a tumor as large as a man's head was found. Pain in the pelvis is frequently noted, menstrual disturbances seldom, marasmus and cachexia are occasionally seen. Marked enlargement of the tumor has led the patient to seek relief in some cases.

THE TUMORS.

The tumors have varied in size from that of a walnut to that of a mass weighing 93 pounds. Most of these spoken of are compared in size with the head of a child or an adult. Single ovarian tumors are noted in 59 cases, double ovarian tumors in 21, doubtful 5. In a number of instances an apparently healthy ovary was left, which became involved thereafter. This is of prime importance in dealing with these tumors. They have varied from dense, hard tumors to soft brain-like masses and to cystic growth. Their capacity for rapid growth has varied much.

ASCITES.

Only in a few exceptional cases has there been an absence of ascitic fluid, as mentioned by Hertz, Pollano and Barbour. In many cases, for example those of Abadie, Burckhard, Lange, Mirabeau, and many others, ascites is a very marked feature. Many speak of drawing off eight to ten liters of watery or bloody fluid. In some cases this enlargement forced the patient to seek relief, and has been mentioned as the cause of death (Kötschau). The fluid has varied from light, clear-colored fluid to hemorrhagic pus.

METASTASES AND EXTENSION.

Metastatic growths have been found on the uterus, the opposite ovary, the peritoneum, omentum, liver, lungs,cord, and in my case they were found in the vagina, inguinal region, body and legs. Metastases are very common. The uterus, bowel and omentum have also been involved by direct extension.

OTHER COMPLICATIONS.

Pneumonia complicated Papaioannou's case. Pleuritic effusion, requiring repeated aspiration, has been noted. Graefe's case had thrombosis in leg previous to the operation. Lange reports embolism of the lungs once. A strange coincidence lies in the fact that two of these cases, Marchand's second and Amann's forth, developed the tumor in an inguinal hernia, while, as Andrews informs me, only 400 cases of ovarian hernia have been found. A possible ætiological factor might be traced to the irritation of the hernia. Ribbert's case required a portion of the bowel to be removed on account of the attachment of the tumor and degeneration of the bowel. Lange's case was complicated by a myoma of the uterus. Some cases died of peritonitis. In Mirabeau's case the tumor ruptured into the bowel. Haake and Schmaus speak of appearances of syncytial cells in their specimens. Hardly a case has been studied that some degenerative process has not been noted. Cystic, myxomatous, hyaline and calcarious degeneration and hemorrhagic infarct are common.

MORTALITY.

A study of 85 cases relative to mortality brings out these startling facts: 20 cases are reported to have died during the first month; 34 are reported recovered; 31 have no record as to recovery or death. If the term "recovery" referred to the ultimate outcome of the disease, this would make a fair showing but it does not. Eleven of the 34 "recovered" cases are reported as having had return and death in from six weeks to five years. The term "recovery" refers only to recovery from the operation. In the remaining 22 cases reported "recovered," only a few are reported to have been seen afterward, the latest observation having been made in Hubert's case one and one-half years after the operation.

Good results are reported after surgical treatment for endothelioma in other regions and no doubt evidence will be produced later of permanent recoveries after removal of ovarian endotheliomas but at present we lack this information, except that based upon observations made from a few weeks to one and one-half years after operation. Randolph reports an example of spontaneous arrest of growth and disappearance of an endothelioma. Thus do we find, by direct statements, that 31 have died, while no observations have been made to prove permanent recovery in the remaining cases. Probably some of the early deaths were incident to the operation, but the death rate at this time was undoubtedly increased by the cachexia. Borst, Zeit, and others call attention to the importance of early differentiation, as the endothelioma is less liable than other malignant tumors to return if operated upon early. Many of our cases were operated late, after metastases had occurred. When we remember the difficulty of differentiation clinically, and the tendency that benign tumors have to undergo malignant degeneration, it emphasizes the neceeity for early removal of all ovarian growths.

In conclusion I would say:

1. Less confusion will prevail if the endothelioma is considered a separate class of tumor.

2. Such a classification has justification in the histogen esis, morphology and arrangement of the cells.

3. The tumor cannot be made to conform to the sarcoma or the carcinoma.

4. Endothelioma should be divided into three varieties, as suggested by Amann, rather than two as suggested by Cullen and Ackardt, or five as suggested by Hansemann, to correspond with their three origins.

5. Endothelioma of the ovary has a high mortality if operation is delayed.

6. Patients should be educated to seek earlier relief for pelvic conditions.

7. On account of the tendency of the uterus to become involved and the growth to return in the opposite ovary, we should seriously consider the advisability of their removal at the time of removing a malignant tumor of the ovary.

8. The small number of cases of endothelioma of the ovary reported should stimulate us to a more careful consideration of our pathological material, in the interest of science and humanity.

THE PLEXUS.

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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Send contributions to A. R. Johnstone, M. D., Editor, 4147 Lake Ave., Chicago.

THE PLEXUS AND THE ALUMNI ASSOCIATION.

For a number of years past there have been loud complaints from members of the Alumni Association that the PLEXUS has not reached their standard as a representative college journal. Any discussion of the reasons for these complaints would be fruitless, but some profit may be derived from discussion of the best means of improving the quality of the journal.

The editorship has been placed in the hands of an alumnus and the new editor hopes by making careful and persistent efforts at organization to establish a means of exchange for news pertaining to the college and the alumni that will be much more effective than has existed heretofore and in that way make the journal of active, live interest to the alumni. Then it is hoped that the journal can gain recognition by the "Index Medicus" so that original articles that may be contributed by an alumnus or a member of the college faculty will not be lost to medical literature. It is not reasonable to expect that an author will favor a journal with articles of any value when he knows his article is lost after a limited circulation but if the paper is indexed in the Index Medicus and thus preserved for reference by the whole profession the incentive to write for the PLEXUS would be much greater.

It is not the heavy scientific paper, however, that is needed to make a college journal of interest to its readers and of value to the college as much as it is that the college jounrnal furnishes the best medium for exchange of news between the alumni, the student body and the college and of stimulating a spirit of college pride and fealty and of perpetuating interest in college affairs and loyalty to our Alma Mater.

If the PLEXUS is to become a journal of any real value to the college or the alumni a greater interest must be stimulated in it on the part of the individual alumnus as well as the students and the faculty members and the work of the new editor will necessarily be one of organization largely if he is to make any headway in the right direction.

The midsummer season is not the best time to show results but it may be a good time to start operations and to suggest that all of the readers of this issue prepare themselves to do something to assist in making the journal of interest.

If each alumnus would remember that a news item relating to himself or a fellow alumnus would be of interest and would be of material assistance in making the journal interesting to others and would send in a statement of it we would soon come to realize that the faults of the PLEXUS were largely faults of omission on the part of the alumni themselves. Let us then start now and collect a few news items and send them in. They will all be of interest to some of our readers, and we will soon look forward to the coming of the PLEXUS with pleasurable anticipations.

THE QUINE MEMORIAL BUST.

A bronze bust of Prof. William E. Quine is being made by the noted sculptor Count Santa Eulalia, to be presented to the Quine Library. This bust is to be paid for by subscriptions by the alumni and faculty members.

This presentation will be a graceful compliment to Prof. Quine and a valuable art addition to the library.

At the time of the unveiling of the bust an illuminated scroll will be presented to Prof. Quine on which will be inscribed the names of the subscribers.

It is to be hoped that a large number of the alumni will avail themselves of the opportunity to express their admiration for Prof. Quine by making subscriptions. A large number of small subscriptions will carry a greater compliment than would only a few subscriptions of larger amounts.

The bust will cost one thousand dollars, and it is hoped that there will be enough subscribed also to furnish a suitable pedestal and pay for the scroll. If there be more than enough to do this the balance is to be used for the purposes of the library.

Subscriptions for nominal amounts of one, two or three dollars from a large number of alumni are to be preferred to larger subscriptions from a few.

Subscriptions to this fund may be sent directly to the college in care of Mr. Brown.

The Illinois State Board of Health Bulletin for May–June, 1907, replying to the criticism of a friendly correspondent, regarding what he considered the dry, unreadable and general uninteresting style of the health circulars issued by that Board, waxes humorous in the following parody which they suggest might possibly appeal more to "human interest" and "cause the populace to sit up and take notice" and create comment and discussion far and wide.

THE STATE BOARD OF DOCTORS

(Chartered by the State).

AN EMINENT CORPS OF SPECIALISTS. EACH ONE A MASTER.

DO NOT DIE

WHEN OTHERS FAIL CONSULT THE STAME BOARD OF DOCTORS!

WE CAN CURE YOUR AILMENTS

We cure all diseases that other practitioners have given up as hopeless. Hundreds crowd our offices daily afflicted with seemingly incurable diseases, and go out healed. After the first treatment all are immediately relieved of their pains. We are all particularly anxious that those who have been given over to the mercies of the angel of death by other physicians should consult us. We love to rescue them, and the instances in which we have done this runs into the tens of thousands.

THIS IS THE TIME OF THE YEAR TO WARN AGAINST TYPHOID FEVER. TYPHOID FEVER, THE DEVASTING DEMON OF DISEASE AND DECAY, DRIVING US DESPERATELY TO THE DOORS OF DEATH.

The deadly germ of *typhoid fever* lurks in the limpid pool, in the crystal waters of the brook, in the rippling spring, within the "old oaken bucket, which hangs in the well,"—renowned in poetry and song as the typification of purity! It lurks in the broad-brimmed cup of convivial hospitality, ready to spring upon its unsuspecting prey, and plant its talons in the soft and velvety Peyer's patches, which eminent scientists have properly named the "soul of the intestinal tract." The gental hand of the loving mother, pressing the cup of sparkling water to the lips of her babe, is probably inserting the deadly blade which will penetrate the delicate internal organs of her offspring, ending in suffering, perforation, hemorrhage and death!

Answer these questions Honestly. Upon your answers may depend your life and health.

Have you a tired feeling at evening? Do gases form in your bowels? Do your feet ache after walking long dis tances? Do you have a bad taste in your mouth in the morning? Is your tongue coated? If so

YOU PROBABLY HAVE TYPHOID FEVER.

If you have the above symptoms and have been in the habit of drinking water, or have eaten vegetables or fruits that have been washed in water, it is safe to say

YOU HAVE TYPHOID FEVER.

But do not despair. Send your symptom blank at once to the *State Board of Doctors.* They never sleep. With microscopes of such high power as to fathom the innermost cavities of the human body, and to detect a fracture of even such a minute structure as the os magnificatum, they can diagnose your case in the twinkling of an eye. In the field brought to light by these most powerful microscopes it is often possible to discover over ten million typhoid fever bacilli to the cubic hexameter.

Our laboratory is equipped with instruments and apparatus more costly than the precious stones of the mines of Africa. The dyes and stains in which the deadly typhoid germ is embedded, after being rendered unconscious by the fumes of strange and secred decoctions of rare herbs, are brought from the jungles of the tropics, and combined with wonderful accuracy and scientific skill for the use of this laboratory alone.

The secrets of nature, hidden from those of ordinary talent and skill, are as an open book to the *State Board of Doctors.* When others despair, they bring a message of comfort and encouragement.

IT IS NOT TOO LATE. WHILE THERE IS LIFE THERE IS HOPE.

Act to-day! Fill out the question blank and enclose it with a lock of your hair in the stamped envelope enclosed. *We do the rest.* The reply with treatment and advice will come *in a plain package—no name, nothing to indicate the contents.*

Avoid the pitiful spectacle of the ordinary doctor battling helplessly against the dread spectre of typhoid fever! Come to us! At the mention of our name the deadly germs rush shrieking from the body—gasping, struggling, squirming, shivering, shuddering, dying germs—germs which yield only to the method adopted by us after fifty years of uncreasing toil, and unending and unremitting study!

OUR OFFICES ARE ALWAYS OPEN—YOU SEE NONE BUT THE DOCTORS.

GOVERNOR DENEEN AND THE MEDICAL DEPARMENT, UNIVERSITY OF ILLINOIS.

Extract from Illinois State Board of Health Bulletin, May-June, 1907.

The following communication clearly sets forth the reasons that impelled Governor Deneen to veto the bill "for an act authorizing the University of Illinois to acquire the necessary buildings for the housing of its medical department."

State of Illinois, Executive Department,
Springfield, May 27, 1907.

To the Honorable, the Senate:

I return herewith without my approval, Senate Bill 120, "An Act authorizing the University of Illinois to acquire the necessary buidings for the housing of its medical department."

This bill appropriates $386,000 for the purpose of erecting or acquiring suitable buildings and equipment for the conduct of said department of the University of Illinois. The acquirement of suitable buildings for the accommodation of this department of the State University I deem, in itself, a desirable and much needed addition to the equipment of the University; but I am confronted with the necessity of withholding my approval from appropriations aggreagating $1,500,000 to $2,000,000 of the total appropriations made by the General Assembly at its last session, in order to avoid a decided increase in the rate of taxation.

It appears that the appropriations for the biennial period 1907-1909 aggregate $21,095,000. The excess of the present appropriations over those which were allowed to stand at the preceding biennial period, aggregate sin the neighborhood of $5,000,000.

Largely increased appropriations have been made by the General Assembly for the maintenance, improvement and extension of our state charitable institutions, our penal and correctional institutions, and our State University. Deeming it advisable, so far as the finances of the state will permit, to allow these important appropriations to stand and to curtail expenses in other less immediately important directions, I return without my approval Senate Bill 120.

CHAS. S. DENEEN, Governor

ALUMNI NOTES.

Dr. Vard H. Hulen graduated from the College of Physicians and surgeons in 1887 and the following year graduated from the College of Physicians and Surgeons of New York. He returned to Chicago and for two years was assistant to Dr. D A. K. Steele in his private practice. He then went to Galveston, Texas, and entered into partnership with Dr. Fly in that city, doing a general medical and surgical practice. Two years later Dr. Hulen decided to devote himself to the study and practice of Ohpthalmology and to that end he took a post graduate course in New York and secured an interneship in the Manhattan Eye and Ear Infirmary, the service lasting eighteen months. Subsequently Dr. Hulen practiced his specialty in Galveston successfully, but after two years more he decided to go to New York to live. The doctor had been married while in Galveston and the climate of New York proved too rigorous for Mrs. Hulen, whose health suffered quite seriously while there and this decided the doctor to move to San Francisco, where he built up a very lucrative practice, limiting himself exclusively to the diseases of the eye.

At the time of the San Francisco disaster Dr. Hulen lost all of his instruments and office fixtures but escaped any more serious loss or personal injury. After the disaster the doctor went temporarily to Huston, Texas, but recently returned to San Francisco and has been appointed to the Senior professorship of Ophthalmology in the medical department of the Leland Stanford University,

Dr. Edward H. Clark, of the class of 1906, has been appointed to the chair of Gynecology and Obstetrics in the Eclectic Medical University of Kansas City, Mo.

Dr. Charles C. Clark, class of '05, and ex-interne at the West Side Hospital, is now located at 3857 Vincennes

Ave., Chicago. Dr. Clark has made very satisfactory progress in the short time that he has been located. In the past eight months the doctor has had several major surgical cases in which he has proved his ability and judgment as a diagnostitian and operator.

Dr. William Walters, class '06, is acting as Assistant Pathologist at the Illinois Charitable Eye and Ear Infirmary. Dr. Walters is making a special study of Eye affections with the intention of limiting his work in the future to the diseases of the Eye and Ear.

Dr. Alfred H. Movins, class '06, is practicing in Flandrean, S. Dak. Dr. Movins served an interneship in the Lakeside Hospital and then entered into partnership with Dr. ——— of Flandrean. Dr. Movins and Dr. ——— have a small surgical hospital and keep two nurses busy caring for their surgical cases.

Dr. L. F. Alrutz, '04, well know to the student body as instructor of obstetrics and as having charge of the obstetrical ward in the West Side Hospital was married on May 8th, 1907, at Kenosha, Wis., to Miss H. A. Truax of that city, who also will be very kindly remembered by the nursing staff of the West Side Hospital to which she contributed in no small manner to the splendid standard of efficiency maintained by that institution and where, notwithstanding their many numerous duties the amiable doctor and his future charming wife evidently found time from the drear of the usual hospital surroundings and the exactions of the lying-in room to appreciate in each other similar sympathetic thoughts and ideals of action, such discovery of a common bond giving a hue to enliven an otherwise sombre round of duty. May the doctor and his better half have every success and enjoyment in the future.

Dr. S. V. Hageman, '07, on the occasion of whose noisy wedding preparations, some time before graduation, special bulletins were displayed at the College building, is now permanently located at North Chicago and reports excellent prospects.

Dr. F. M. Doyle, '04, is at present serving a term as interne at the St. Bernard's Hotel Dien Hospital, 64th St. and Harvard Avenue. Since his graduation Dr. Doyle has been taking the places of various practitioners in the West end and is therefore in a commanding position to glean the most benefit from his stay at the hospital.

Dr. E. G. Sepple of the class of '05 is serving a term as interne at the St. Bernard's Hotel Dien Hospital on the South side. He has not decided whether it is the Lake Shore drive or Drexel Boulevard on which he will locate when through.

Dr. E. A, Roch, '05, completes his interneship at St. Bernard's Hospital in this city on September 1st, and turns his thoughts seriously towards hanging out his shingle in one of the South suburbs. We feel sure that wherever the scene of Dr. Roch's activities, success will be his under all conditions.

Dr. Frank Deacon, '04, has been appointed as Instructer in Physiology at the College and is expected to hold forth in that capacity after October 1st next.

FACULTY NOTES.

Our faculty members are very busily engaged this month taking their vacation and thinking up novel fish Stories. Our dean, Prof. Quine, is at Harbor Springs, Mich. Our Secretary, Dr. Frank B. Earle, is at Charleoo, Mich., and Dr. Wm. M. Harsha is at Old Mission, LaPointe, Wis. Some of the faculty members have been careful not to say where they were going to spend their vacations. This reticence may enable them to add artistic enbelleshments to their stories. Dr. Charles Spencer Williamson was called in consultation to Quebec, Canada.

JUNIOR NOTES.

Dr. Fuller: What is meant by a celiotomy?

Ingold (undecided but with the assistance of Smith):

Why, ——it is the removal of a hydrocele. Moral: Two heads are not always better than one.

Townsley has devised a new cure for perspiring feet. It depends upon the use of drainage tubes. We would suggest that he refrain from using too free drainage.

De Leon, in whose high morals we had so much faith, has shattered all our hopes. He recently appeared in the halls the proud possessor of a new briar and a full sized package of Durham.

Although Hammerstrand has not the required number of dispensary hours the class can testify that he has more than that number to his credit on the Y. M. C. A. couch. We are glad that his religious fosterings prompts him to rest his wearied brain in a moral atmosphere.

One of the members diagnosed a case of leucoderma in a skin clinic as leukorrhea, but corrected himself by saying that he did not believe that a leukorrheal discharge ever appeared on the face.

But for an unavoidable error in diagnosis the class would have witnessed a second operation in Beck's clinic. The details follow:

B., who had appeared at the classes for a couple of days with a forlorn and troubled countenance, keeping all his classmates in suspense by his seemingly unwillingness to divulge the cause of his demeanor, finally confided to one of the members said cause which was promptly made known to the class.

It seems that B. had been the victim of an excruciating pain in the region of McBurney's point, described in his own words "as a sharp, piercing pain apparent at frequent intervals. Now B. is very modest and would not submit to an examination, but the Juniors all being surgeons of no mean ability immediately diognozed the malady of appendicitis, that rare condition which was invented to keep the struggling young surgeon from starvation's door during his first years of practice. Therefore B. was given orders not to partake even of his Sunday "coffee and," and to present himself on the following Monday morning for the ordeal. B. was a little reluctant but still was willing to undergo the sacrifice in order to give the clinic a second operation.

Therefore Chief Surgeon Smith made all the arrangements, and when the hour arrived we find the instruments sterile and everything prepared to demonstrate the fact that modern surgical science is the certain remedy for the alleviation of pain. Everybody was there, but where was the patient? A messenger was dispatched to bring him to the field. The anæsthetist was becoming extremly nervous as were also a few of the rest; but Smith entertained the class at this stage with a disclosure of his high scholarship attainments, including the fact of his receiving first place in therapeutics. This ought to hold any class for a while and therefore the time soon elapsed until the return of the messenger.

But surprising as were the above disclosures still greater were those of the messenger, for it seems that B. had himself eliminated the cause of his discomfort. It seems that he, wishing to appear as neat as possible for the great advent had decided, contrary to former routine, that a change of inner wearing apparel was indicated. During this "presto change" he could hardly believe his optics but assuredly there in his discarded garb he beheld a pin firmly embedded in the balbriggan fibers with only the vulnerable point exposed pointing to the cutaneous seat of pain.

It is needless to say more, but thus ended all hopes of a second operation for the clinic.

Mr. Ingold, who is authority on classical literature, has handed in the following few lines:

Mary had a little goat,
His given name was Bill,
And everywhere that Mary went
The goat went too, until
They met a wicked doctor man
And had a business session;
Bill's testicles are now in a jar,
His thoughts defy expression.

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DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., AUGUST 20th, 1907.

A COMPARATIVE STUDY OF THE PHYSIOLOGICAL ACTION OF ANESTHETICS.

By C. M. Paden, M. D., D. D. S., Chicago, Ill.

The amazing developments in dentistry during the last twenty years have produced many specialties. It was once thought that the field of dentistry was narrow and that any man of ordinary ability should be able to cover every part of it and have time left to go fishing or hunting, as his taste might lead.

The demands now made on the skill of the dentists in centers of culture and wealth and the very considerable rewards which attend peculiar skill in any line have led many dentists to perfect themselves in one branch of the practice to the exclusion of others. Thus the city practitioner whose time is valuable can no longer attend to his own regulating cases. He refers them to the orthodontist, whose time is given almost exclusively to this work. Many dentists confine themselves to porcelain work and refer all other work to other practitioners.

But most of all is this attitude true of extracting. It requires constant practice to be skillful with forceps, and it is unclean work at best. In many cases it brings the general practitioner no remuneration, because he may be required to deduct the price received from other work. Furthermore, and most potent of all, the practice of letting the patient bear the pain of extraction by sheer grit no longer obtains, and the extracting specialist must be prepared to lull the patient into a quiet sleep, remove the roots or teeth in a skillful manner and arouse the patient to the consciousness of a happily completed operation.

The writer has for some time been an extracting specialist enjoying a practice among the dentists of Chicago and a growing practice in the administration of anesthetics for physicians in minor surgery cases.

The necessities of practice, the rapid succession of patients, the inconveniences of inducing a true surgical anesthesis and the imperativeness of rapid recovery without nausea, has long since compelled the writer to abandon the general use of chloroform and ether in favor of the quicker acting anesthetics, nitrous-oxide and somnoform. His heart being in his work, he was led to note the clinical manifestations of these anesthetics and to seek the best knowledge obtainable in their various physiological manifestations. To his surprise he found the literature on the subject scanty and indefinite.

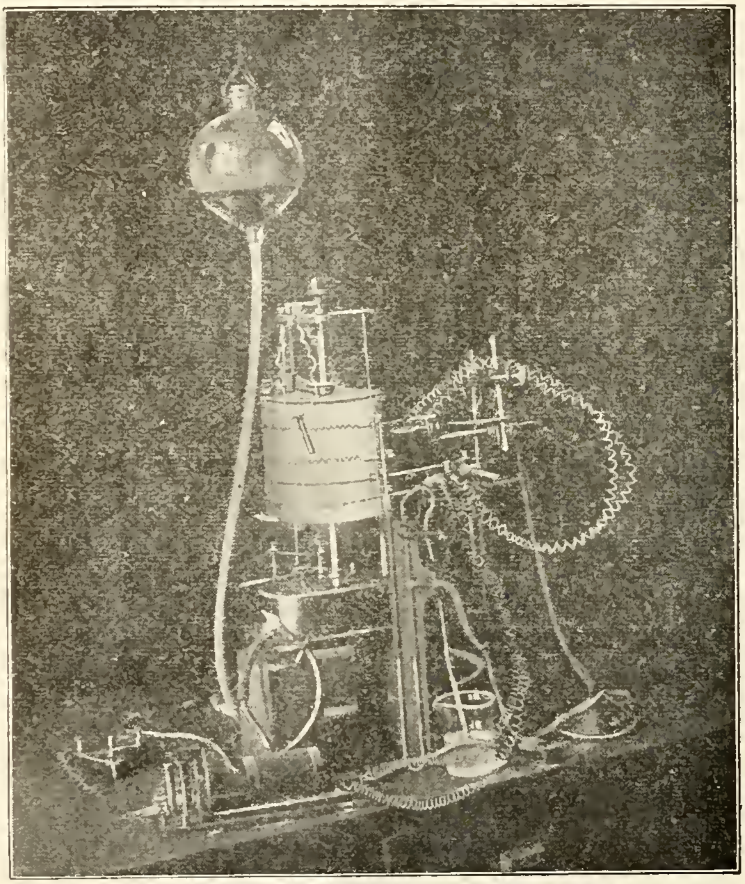
Anesthetics differ as do other drugs and manifestations of the same anesthetic differ with different patients, or with the same patient under different conditions. So noticeable may be these differences that the operator often puts the anesthetist through an impromptu quiz on the subject, expecting of course that he can answer ordinary questions in his own specialty. Study the manifestations as he would, and read as best he could, the writer often found these questions very embarrasing because he knew of no conclusive answer. There slowly grew up in his mind the intention of taking some radical course for the settling of these questions, so far as they were capable of settlement. It is the purpose of these articles to tell of the steps taken and the solutions they brought.

The line of information sought would have been easy of answer had the interest been in chloroform or ether, but I wanted to learn the abilities of the newer anesthetics, whose actions are more rapid. For the five years past I had been administering nitrous-oxide and somnoform, with a preference toward the latter on account of the simplicity of the apparatus, the short induction time, long anasthesia and uneventful recovery. Following the account of a death at Rockford, Ill., which seemed well authenticated, there came the reports of a whole harvest of deaths. Being vitally interested, I ran down nearly every report, only to find them to be like the story of the three black crows.

When a dog is down many folks like to kick him, and so it seemed with somnoform. I heard so many accusations against it, and from men of high standing, that my own attitude became a little uncertain, and I determined to find out whether they were wrong or I was.

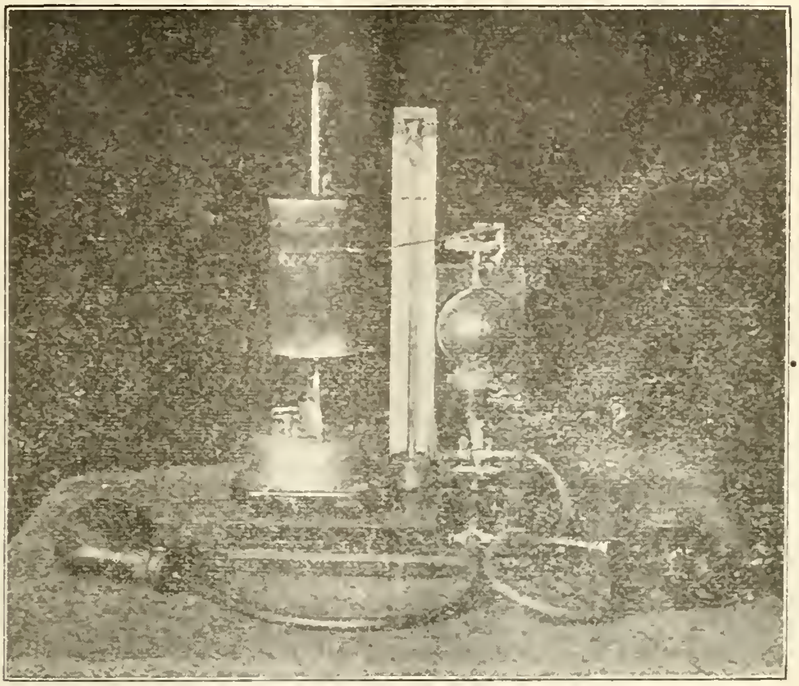
After much stndy the best way to do this seemed to be to take a post-graduate course in anesthetics in an institution of unquestioned standing. As a graduate of the Dental Department of the University of Illinois, I turned naturally to my Alma Mater. At the P. & S. Medical College I learned that a post-graduate course in anesthetics was a new departure, but after a consultation with the superintendent, with Dr. Dreyer, professor of physiology, and Dr. Fantus, professor of therapeutics, a special course was arranged and, a time for beginning having been set, I departed, happy with the thought that my doubts and questions would be speedily settled.

But my course was not to be so easy. On my first morning I was conducted to Dr. Dreyer's laboratory and introduced to as formidable an array of apparatus as it has ever been my fortune to meet. Nor were the terms much less formidable. The first piece of this apparatus was known as the Ludwig Endless Roll Kymograph. Its purpose is to record the rate of heart beats, the blood pressure and the respiration in animals. Of course I knew in a general way that the only plan for noting the action of an anesthetic is to note its effect on the principal vital functions, and I knew in a general way also, that there were instruments for that purpose. So now here I was face to face with one for the first time, and having, I fancy, something the same feelings as the raw recruit to a battery as he looks on the cannon he is to help fire. Illustration No. 1 is a picture of the Kymograph.



NO. 1. KYMOGRAPH.

But in studies so important as anesthetics it is not sufficient "to try it on the dog," so a second piece of apparatus, called the Erlange Sphygmomanometer, has been perfected for the purpose of measuring the systolic and diastolic blood pressure in man. If you have been out of school as long as the writer you have probably forgotten the difference between the systolæ and diastolæ. The systolic pressure is the blood pressure during the contraction of the left ventricle; the diastolic pressure is the blood pressure during the expansion of the left ventricle. That you may get a better idea of the appliance, here is an illustration.



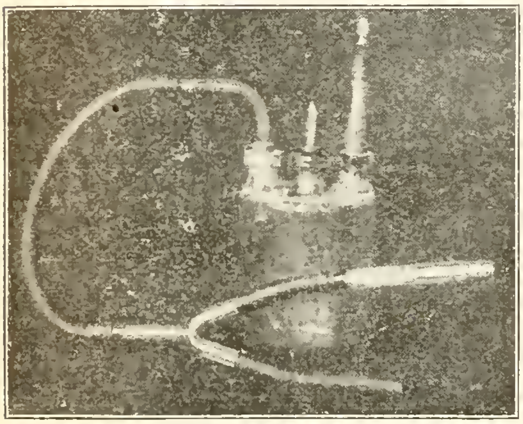
NO. 2. SPHYGMOMANOMETER.

Finally I bowed before Dudgeon's Sphygmograph, No. 3, which is applied to the human wrist and records the character of the pulse, which means the charater of the blood current as it nears the extremities.

NO. 3
SPHYGMOGRAPH

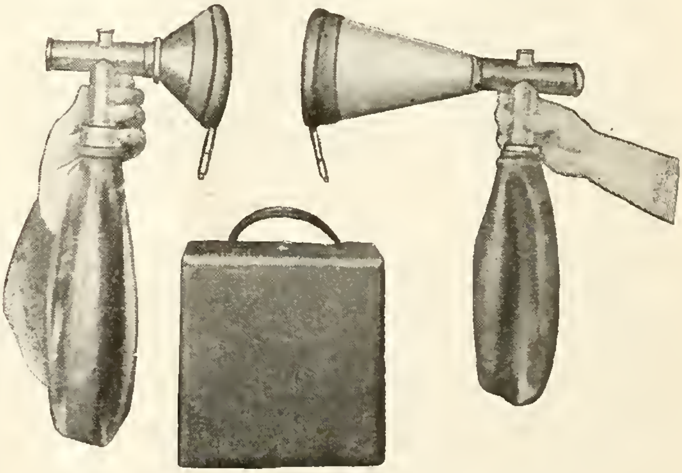
Dr. Dreyer was most considerate while explaining the purposes of these appliances and I did my best to remember, but when I left, and all the way home, my brain was a-jumble of -mographs and -mometers, and I was uncertain whether I was holding the wrist of a dog or noting the respiration of a man. To save you this confusion, the details of each appliance will be described as it is used.

It was decided to begin the course with experiments in the effects of somnoform, which is a comparatively new anesthetic, composed of ethyl chloride 60 per cent, and as the first patients were to be dogs our first task was to make an inhaler that would permit proper administration. Owing to the differences of formation between the canine face and the human face, this proved a task of no slight difficulty. The first inhaler consisted of a respiration bottle, with valves attached for controlling the flow of air in one direction. No. 4.



NO. 4. RESPISATION BOTTLE

As this proved unsatisfactory, a face piece was made with plaster of Paris. The animals took to the anesthetics from this face piece as children take to Castoria. They barked for more, and the more we gave the louder the animal barked. At last, with the aid of the tinsmith, we evolved a suitable face-piece by which the air could be excluded. In illustration 5 the regular inhaler and our modifications are shown.



NO. 5. SOMNOFORM INHALER.

When we had gotten so far our greatest difficulties seemed conquered and we entered on the experiments proper. For fear of making this paper too long, the accounts of these will be deferred, save the report from one extensive experiment to determine the value of using a rapid acting anesthetic to precede ether or chloroform.

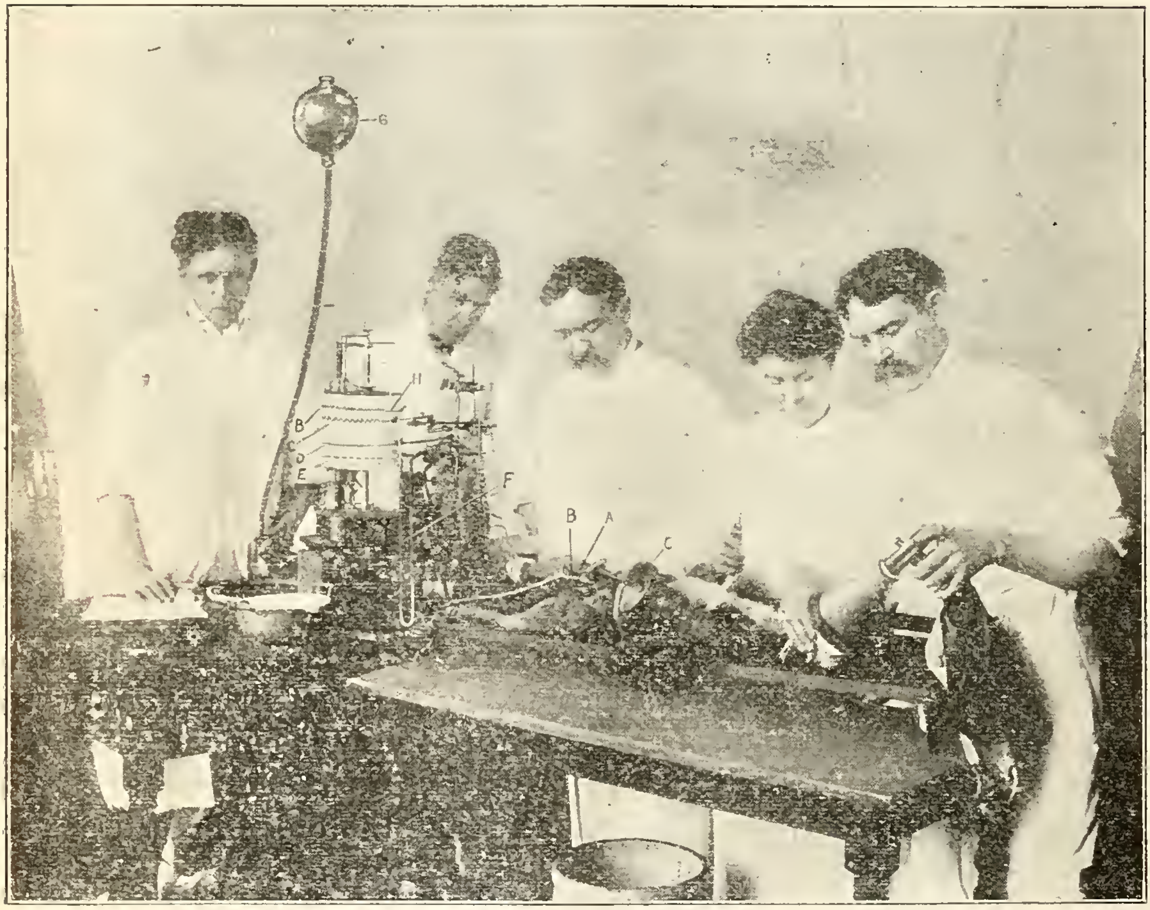
On each of eight tables was a dog on which an operation on the recurrent laryngeal nerve was to be conducted. These operations were identical. At table No. 1 the anesthesia was started and completed with chloroform. At table No. 2 the anesthesia was begun with somnoform and changed to chloroform. At table No. 3 anesthesia begun with somnoform and completed with ether. So on to and including table No. 8, beginning with somnoform and completing with chloroform or ether. All the operations at tables Nos. 2 to 8, that is all in which the anesthesia was begun with somnoform, were completed before the operation at table No. 1, where the anesthesia was wholly by chloroform. In fact, the writer had anesthetized the seven dogs on tables 2 to 8, inclusive, going from one to the other, and the operation at table No. 8, the last dog anesthetised, was completed ten minutes before that at table No. 1.

The close of our preparations left us face to face with the actual experiments. These had it in mind to determine definitely just how the pulse, respiration and plood pressure in animals differ during anesthesia from the same functions under normal conditions.

As these functional activities differ with different animals the only accurate course was to take the respiration and pulse rate from each dog before any anesthetic was given, carefully record it and then do the same at frequent intervals under anesthesia Therefore the pulse and respiration of each animal was recorded before the anesthetic was applied. It was not possible to take the blood pressure then, since that required surgical intervention.

The pulse and respiration being duly recorded, the dog was deeply anesthetized, an opening made down the femoral and a cannula introduced. A cannula is a tubular appliance by which the blood is brought into contact with a column of mercury. As the blood pressure varies the height of the mercury column is changed, and these changes are indicated by a pen, which traces the record on a revolving cylinder.

It was an interested group that gathered about the table to record, for the first time in this country, the results of accurate experiments with somnoform. Some of us had taken this anesthetic. We had felt the subjective phenomena and now took keen interest in knowing just what had occurred. Some of us were in the habit of administering it frequently. We looked forward eagerly to an exact knowledge of what had occurred when we thus assume responsibility fo e life of another person, as the anesthetist always does.



NO. 6. MERCURY MANOMETER.

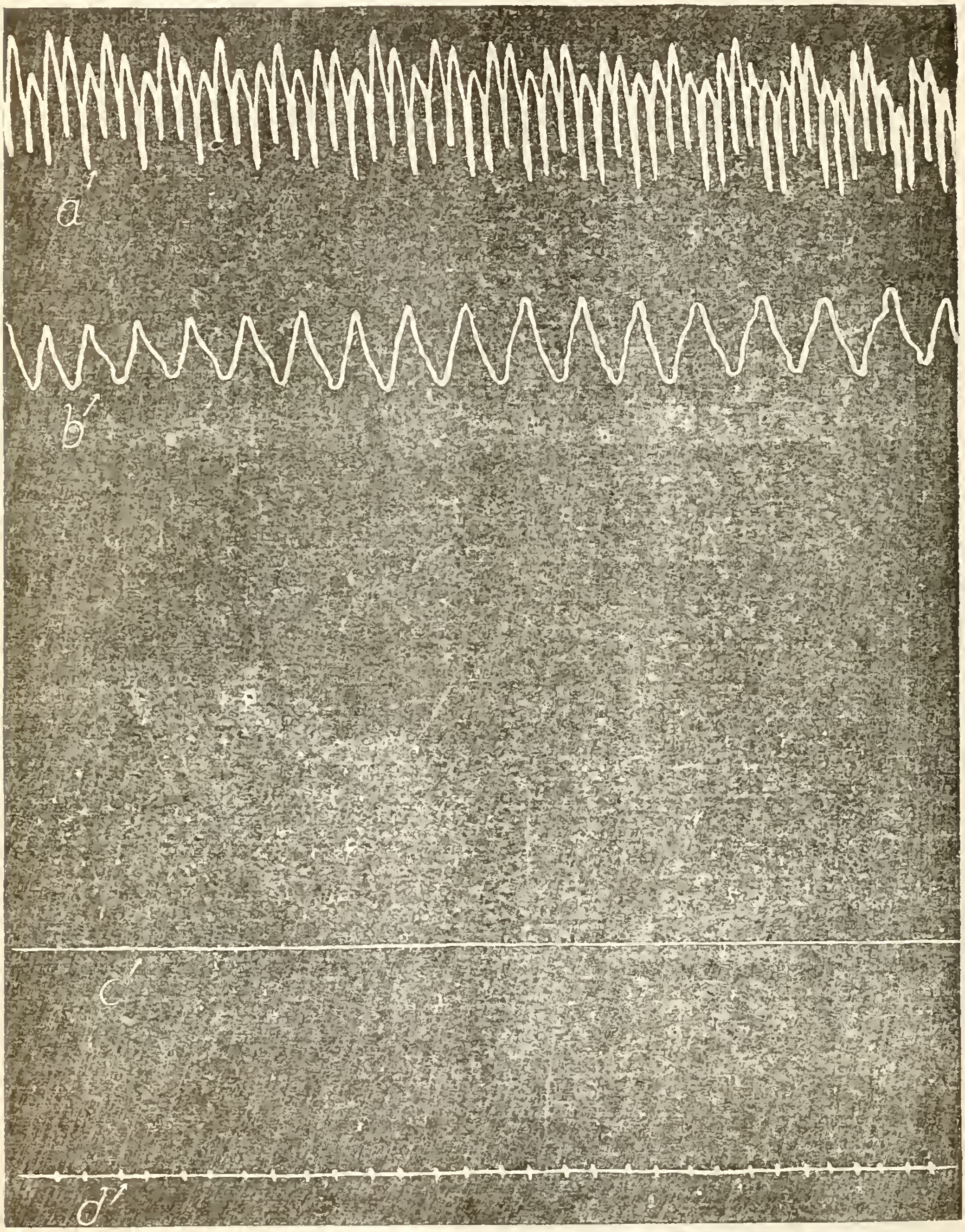
Illustration No. 6 shows the group with the appliances in place for the first experiment. Reading from left to right the persons are T. E. Pawley, Dr. Gabby, Dr. Dreyer; Dr. Paden's assistant, and the writer. The dog is on the table, deeply anesthetized with the modified somnoform inhaler. The apparatus may be best understood by reference to the letters.

"A" shows the location of the cannula in the femoral artery. The letter "B," close to it, indicated the connection of the cannula with the mercury manometer, which is marked "F." "B" on cylinder indicates the line showing the number of the heart beats. Above the manometer is a pressure bottle, "G," essential to the securing of proper records.

This mercury manometer controls, at the end farthest from the dog, a very sensitive marking pen, which reaches to a revolving cylinder "H" and thereon traces every least fluctuation in the blood pressure in the femoral artery. When the importance of this artery is recalled, it will be seen that it is practically the same as the cardiac pressure. At "C" on the dog is the apparatus for measuring the respiration and at "C" on the cylinder, the other end of this apparatus, a pen which traces the respiration, forming the second line from the top.

It would be of little use to have these records if the times and various functions consumed could not be accurately determined, so an electric clock forms part of the appliance, and once every second a verticle mark is made across the lowest line on the drum. The space between each of the marks indicates one second, and whatever is recorded by the upper pens between any two or more occurred in that period. This brings us to the study of our first record and its meanings. In studying these records it must be remembered that they do not show the condition immediately following the induction of the anesthetic. It takes about 30 minutes to make the opening, connect the cannula and get the appliance in good working order, so that when the record begins there has already been an anesthesia much longer than that indicated for any dental operation, and if the anesthetic is to exert any injurious effects they should soon be manifest.

In illustration No. 7, taking the tracings on this record slightly out of order, for sake of clearness, we find at the bottom a line marked "d" with the little verticle lines made by the electric clock at intervals of one second. Next above it comes the line "c," which is the line of zero blood pressure. That means that if the blood pressure in the



NO. 7.

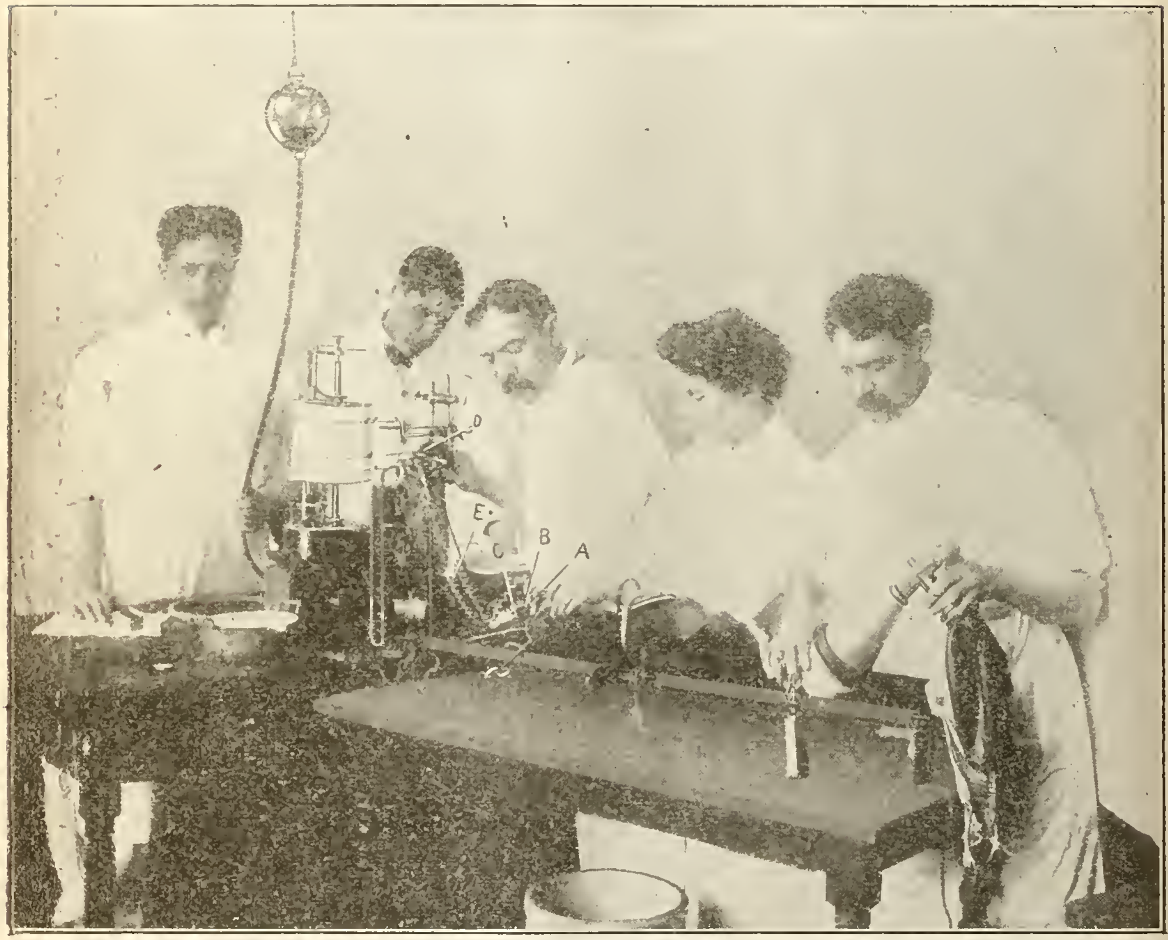
animal were reduced to nothing, the recording pen of the manometer would trace along this line. In proportion as the blood pressure is higher, the manometer pen traces above this line. The distance between the zero line of blood pressure, "c," and the point where the pen traces is measured in millimeters and the blood pressure is said to be so many millimeters. The line "b" represents the tracing by the needle connected with the respiration apparatus and accurately shows any respiratory changes.

The space shown in this record (which is merely a section selected at random from a roll several yards long,) covers one half minute. Doubling the number of contractions to get a full minute, we find that after thirty minutes of anesthesia, during which the apparatus was arranged, the pulse rate is 108 per minute. The higher points shown in this line are the contractions of the left ventricle; the lower points the arterial contractions. There is normally quite a difference in the force of these two, but the curves for each form of contraction will be found very constant.

Doubling the respirations in the same way, we find the respiration rate to be 32 per minute.

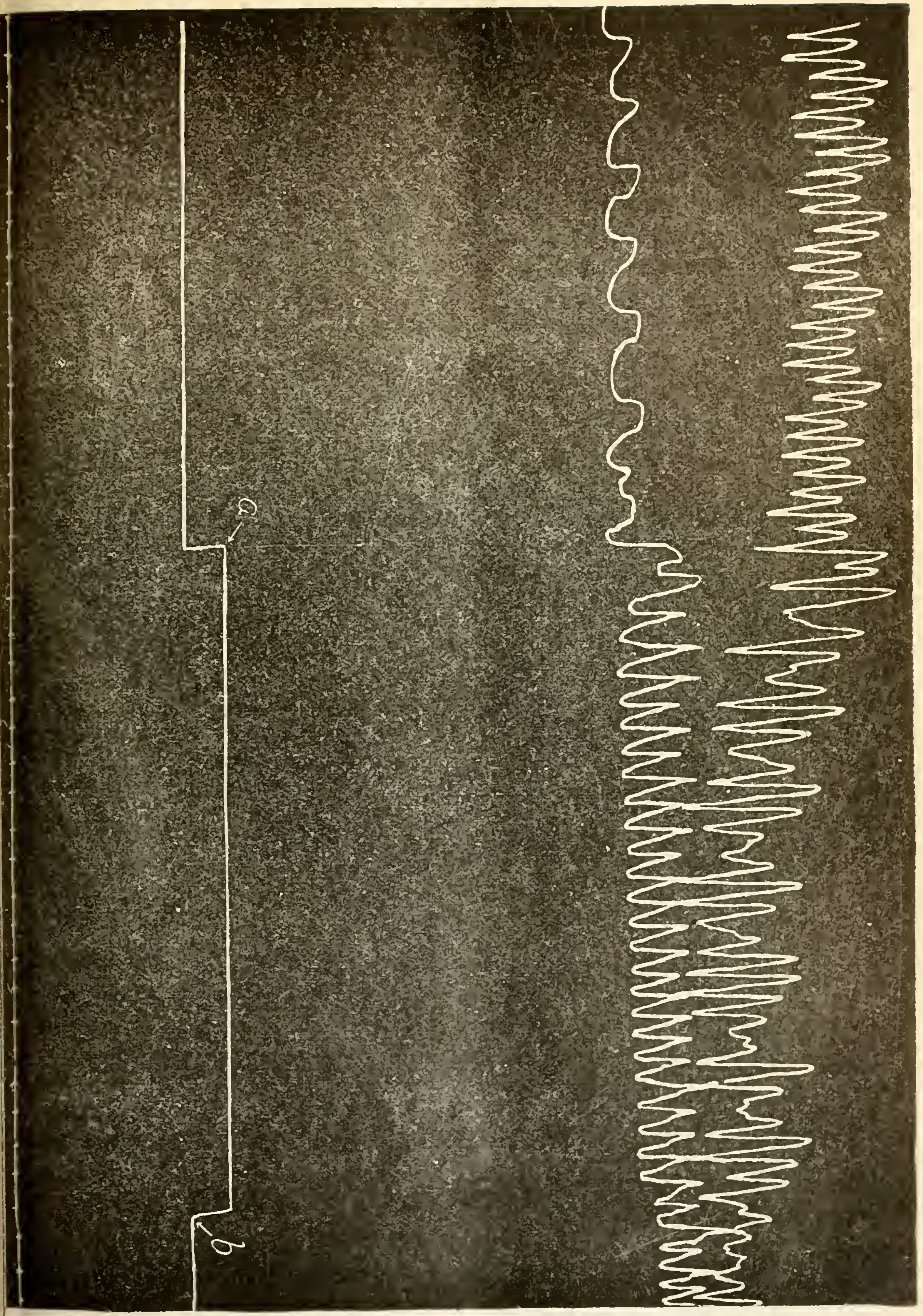
As mentioned above, the blood pressuse is measured in millimeters from the line "c" to where the pen traces. In this case we have a distance of 280 millimeters. Here, then, is a surprising and most satisfactory condition. We have regarded somnoform as a short term anesthetic, and there have been brought to our ears all sorts of horrible tales as to what it will do to a patient if anesthesia be continued more than a couple of minutes. Yet after more than 30 minutes of deep anestheia we find this dog in a most satisfactory condition. This is a clinical proof of the most convincing form, and as the writer witnesses the various experiments the tales of those who often say to him, "You'll kill somebody yet with that stuff," sounded more and more faintly in our ears. Their impressions, born of lack of knowledge, cannot withstand such evidence as this.

Illustration No. 8. After another 25 minutes of anesthesis, during which further experiments of the same nature are conducted, it is decided to stimulate the end of the sciatic nerve with electricity. An incision was made over the nerve and the electrodes applied as in "ABC." A wire connection from the electrodes governs a marking pen, "D," which will record on the cylinder the instant the stimulation is applied, and its continuence. Just before the stimulation we note that the pulse is 100, blood pressure 180, and respiration 32, these after practically an hour of deep anesthesia. The blood pressure is high, indicating that the vaso-motor center on the medulla is maintaining a strong tonic activity. If this center be not paralyzed but sensitive to the stimulation of the sciatic nerve we shall get a dilatation of the blood vessels, with a consequent fall of blood pressure.



NO. 8.

Illustration No. 9, shows the effect of this stimulation. At the point marked "A" the stimulation begins and con-



NO. 9.

tinues about 21 seconds to the point marked "b." The response to the stimulus is immediate, denoting a sensitive condition of the center. We get the expected fall of blood pressure. Some of the experiments show also a rise, but the fall is much more common. The respiratory center also shows that it is not paralyzed, nor its activity impaired. The breathing at once becomes more active, as shown by the second line from the top. These records being eminently satisfactory, it is decided that the next experiment with this dog shall be to stimulate the central end of the vagus or pheumogastric nerve.

The first record taken after we got the apparatus working to our satisfaction is of dog know as No. 2. To ascertain the normal pulse and respiration rates, three readings were made before anesthesia was begun. As these showed little change, that made at 9:30 was taken as normal. It was, of course, impossible to get the normal blood pressure until after anesthesia made it possible to open the femoral artery and introduce a cannula. We found the normal pulse rate of this dog to be 95 and the normal respiration rate 42. At 10 o'clock the administration of somnoform was begun and the pulse quickened until it showed 144 beats a minute, while the respiration deepened and slowed down to 22. As all dogs were considerably excited, the pulse and respiration rates were doubtless higher than would have been the case had the dog been basking before a comfortable fire.

At the end of five minutes a change from somnoform to ether was made, when the pulse became more accelerated showing a rate of 160 beats per minute, while the breathing quickened to 30. Ether causes a rise in the pulse rate during the first and second stages, owing to the excitement and muscular exertion; in full anesthesia the pulse drops back to near normal. At the end of ten minutes of pure ether anesthesia the pulse had become extremely rapid and correspondingly shallower.

Having seen the effects of pure ether on this dog, we changed back to somnoform at 10:50, when the pulse rate immediately decreased, while the respirations returned to slightly less thad normal.

At 11:05 we began to change from somnoform to chloroform and at 11:10 this change was complete. Chloroform anesthesia was continued until 11:25, when we returned to somnoform with the result that the heart actions became slower but stronger, the blood pressure returned toward normal and the respiration to 34. The dog had now been anesthetized for nearly an hour and a half with somnoform, ether and chloroform, and we discontinued this experiment, satisfied with the readings obtained. In a more condensed form they appear in the table below:

Time A. M.	Pulse	Blood Pres're	Respiration.	Remarks.
9:30	95	....	42	Normal.
10:00	144	150	22	Beginning record with somnoform.
10:05	144	150	22	Changing from somnoform to ether.
10:25	160	150	30	Deep anesthesia under somnoform and ether.
10:35	190	140	62	End of ten minutes under pure ether.
10:50	175	150	38	Somnoform anesthesia following ether.
11:05	154	150	66	Changing from somnoform to chloroform
11:10	150	130	62	Somnoform discontinued.
11:15	148	90	28	End of five minutes under chloroform.
11:25	75	100	34	Back to somnoform anesthesia.

Dog No. 3 record is interesting principally because after an hour and fifteen minutes of anesthesia somnoform was pushed to the limit with little apparent effect. The normal pulse rate had been 80 and the respiration 28. When somnoform was pushed the pulse registered 96 and the respiration 30. Below this they would not go. In five minutes after the somnoform was discontinued the animal showed a remarkable recovery, the pulse being rapid, the blood pressure high and the breathing good. Here is the record:

Time A. M.	Pulse.	Blood Pres're	Respiration.	Remarks.
10:00	80	....	28	Normal.
10:30	130	150	68	Somnoform anesthesia.
11:15	66	110	30	Pushing anesthetic to limit.

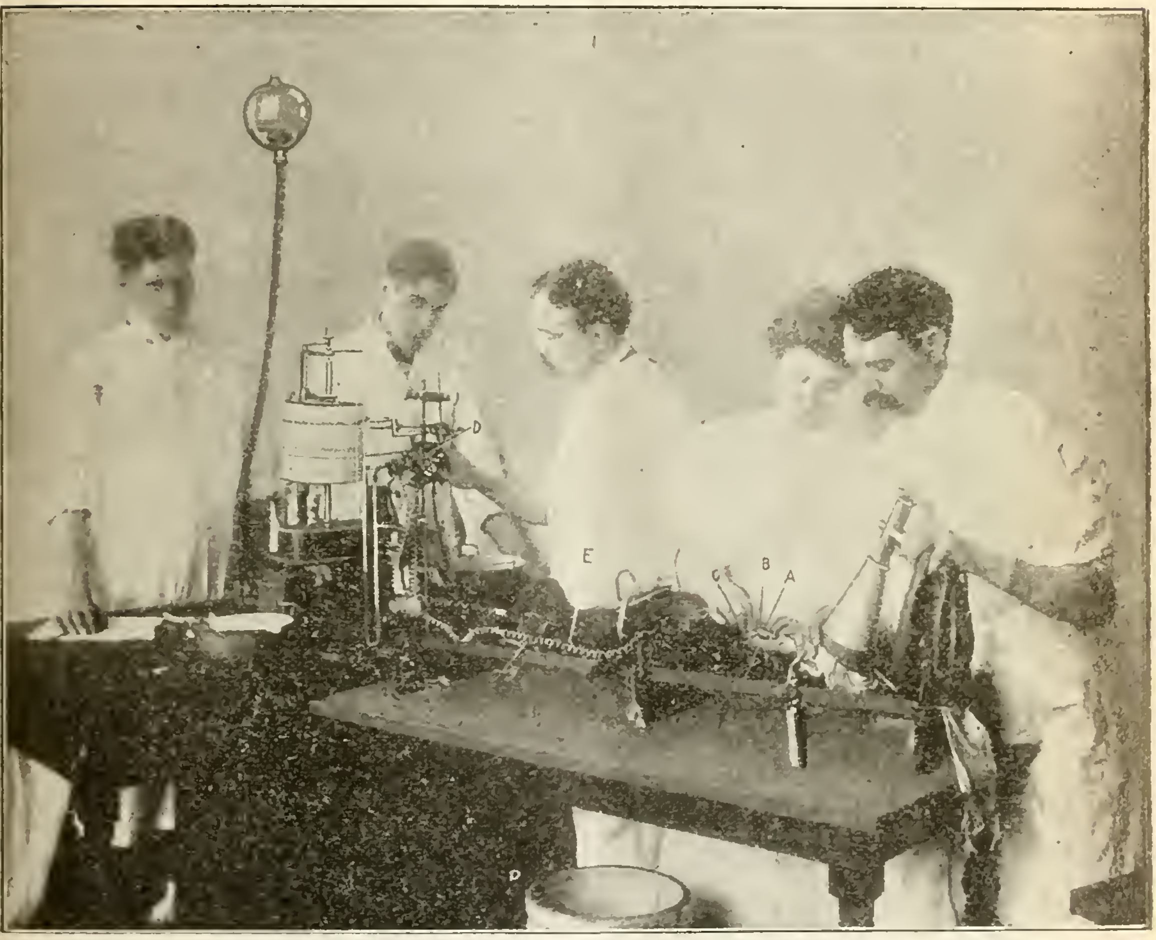
11:20	132	180	20	Recovery.
12:05	136	150	26	Changed from somnoform to ethyl chloride, to ether, to ethyl chloride, to chloroform, to somnoform.

Dog No. 5 was an excited pup, and our best efforts to quiet him to a state where his pulse would be normal before beginning anesthesia were without avail. Owing to this excited stage his normal pulse record, as we were compelled to take it, was very high—120. After thirty minutes under somnoform this pulse shows a rate of 93 beats, but is full and strong. This reading shows clearly that a rapid pulse does not necessarily mean a high blood pressure, or a slow pulse a low blood pressure, provided the slow pulse is full and strong. In fact the slow, full pulse is better than the rapid; shallow one- At 11:05, after thisty-five minutes under somnoform and in a stage of deep anesthesia, the pulse is excellent, the blood pressure a little above normal and the respiration practically normal. It was now decided to make the experiment of cutting and stimulating the vagus and sciatic nerves, from whose actions records have been illustrated. In order to avoid the charge of "doctoring the records," that is, taking the best points from readings on different dogs to make a more favorable showing, all records were taken from this one dog.

Illustration No. 10 shows everything in readiness for a stimulation of the vagus.

Our record will have little value, however, if we do not accurately note the dog's condition just before stimulating the vagus. We find the pulse rate to be 98, blood pressure 180, respiration 28; these after deep anesthesia lasting about an hour and twenty minutes. In illustration No. 11, during the stimulation, which extended thirty seconds, from "a" to "b," the pulse fell from 98 to 92; blood pressure fell from 180 to 100, and the respiration from 28 to 18. In twenty seconds after the stimulus was removed the blood pressure rose to 170 and the respiration to 36.

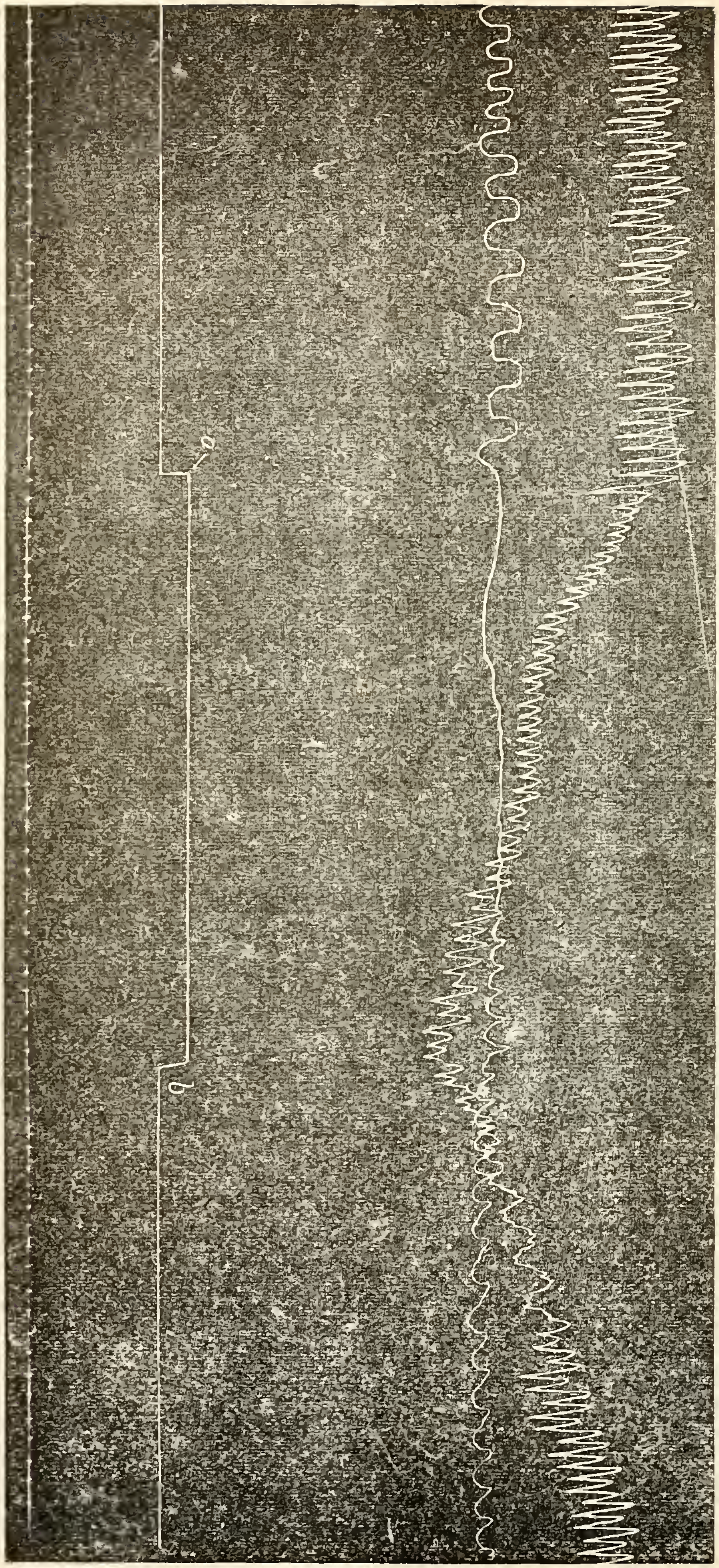
Stimulation of the central end of the left vagus at 11:16 causes marked slowing of the pulse and fall in pressure and quite a startling change in respiration. If somnoform has depressed these centers they will recover but slowly if at all, and the next reading will show pretty clearly how much of a depression somnoform really is.



NO. 10.

Under these conditions the speed of recovery shown by the center is surprising. At 11:13, two minutes after this depression stimulation was applied, the pulse had gone up 100 beats, the blood pressure is practically normal again and the respiration is within four beats of the normal rate. Surely centers which act in this manner show no indication of being subject to the action of depressants. See illustration No. 9, sciatic stimulation.

At 11:36 the sciatic was stimulated and at 11:51 the



NO. 11.

central end of the vagus was again stimulated. The effects of both stimulations are shown in the table below, as well as the rapid return to what closely approximated a normal condition.

At 12 o'clock it was decided to force somnoform with intent to kill, but after ten minutes of this, during which time we used 90 c. c., the records showed a pulse of 144, blood pressure 140, or about normal, and respiration strong at 16. It was decided that the only way to kill this animal with somnoform was to shut off all air and asphyxiate him.

Time A. M.	Pulse	Blood Pres're	Respiration.	Remarks.
10:30	120	....	28	Normal.
11:00	108	180	34	Thirty minutes after anesthesia.
11:05	97	170	26	Deep anesthesia, somnoform.
11:15	156	160	33	Left vagus cut.
11:16	77	170,100,120	6	Stimulation of left vagus, central.
11:18	177	155	24	Recovery.
11:35*	100	180	32	Before stimulation of sciatic.
11:36*	108	160, 150	72	During stimulation of sciatic.
11:38*	93	160, 170	34	After stimulation of sciatic.
11:50*	98	180	28	Before stimulation of vagus, central.
11:51*	92	180,130,100	18	During stimulation of vagus, central.
11:52*	96	170	36	After stimulation of vagus.
12:02	144	140	16	After forcing anesthetic with somnoform for ten minutes with intent to kill.

Dog No. 7 showed reactions which can be gathered from the following table. His nerve centers manifested the same activity after long anesthesia with somnoform and demonstrated that when the artificial stimuli were removed these centers were capable of rapid recovery and maintaining the organic functions on which life depends.

Time A. M.	Pulse	Blood Pres're	Respiration.	Remarks.
10:32	130	....	30	Normal.
10:52	128	160	28	Somnoform anesthesia.
11:07	111	180, 150	70	Stimulation of sciatic nerve.
11:26	52	180, 100	20	Peripheral vagus stimulation.
11:27	160	180	23	Following stimulation.
11:52	124	170, 130	12	Central vagus stimulation.

To be Continued.

SCHOOL OF PHARMACY.

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A NEW COURSE.

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions under the Food and Drugs Act, this school offers, beginning September 24th, 1907, a course leading to the degree of Pharmaceutical Chemist and composing two annual sessions of 36 weeks each, with instruction on five days each week, and amounting to about 33 hours weekly or a total of 2,300 hours in the entire course.

This course will be partly concurrent with the seven months course leading to the Ph. G. degree and will include all the didactic instruction given in the latter. It will consist largely of laboratory practice and will embrace in addition to the curriculum of the course for the degree of Graduate in Pharmacy, for which, see the Annual Announcement, pages 20 to 30, the following subjects:

Qualitative Analysis. The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention will be given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After a thorough course in the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds will be taken up; especial attention will be given to the detection of dangerous impurities such as arsenic, copper, lead, etc. The course concludes with a study of the detection of metallic elements and inorganic acids in the presence of organic compound, and the recognition of carbon, hydrogen, nitrogren, etc., in organic compounds.

Text Book—Qualitative Analysis, Prescott & Johnson.

Quantitative Analysis. This course covers the ground included in the course in quantitative analysis (Chemistry 5) of the Ph. G. course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Text Books—Quantitative Analysis, Select Methods, Clowes & Coleman; Volumetric Analysis, Coblentz.

Organic Analysis and Proximate Assays. Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.,) aldehyds (detection and estimation of formaldehyds, class reactions for aldehyds, estimation of citral in lemon oil), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products.

Text Books—Outline in Quantitative Analysis, Puckner; U. S. Pharmacopœia,

New Remedies. Following the course in organic chemistry

(Chemistry 6), the many new remedies, especially the so-called "synthetics" will be taken up by classes. In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the many new remedies, especially the so-called "synthetics," the course in organic chemistry (Chemistry 6) will be followed by a systematic consideration of the newer remedies.

Text Book—New and Non-official Remedies, American Medical Association.

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine will be discussed and the application of the methods of analysis previously studied to the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course will be given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods will be discussed, also the methods of preparation and preservation and the use of preservatives will receive attentinn. The methods of estimation studied in previous courses will be applied to milk, butter, fats, oils, baking powder and beverages, and supplemented by special methods.

The composition of mineral waters and their analysis will next be considered, also the sanitary analysis of water will be taken up practically in the laboratory.

Pharmacy.—The work in Pharmacy will be chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants: specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations in products of oxidation and reduction, calcination, etc., will be given supplementary to the work in chemistry. The manufacture of official and extra-official preparations will be increased with especial reference to such modern preparations as are employed in this country and abroad in the various surgical specialties: Dermatology, Ophthalmology. Laryngology, Gynecology, etc. Extemporaneous compounding will extend over the more elaborate forms of dosage preparations and to prescriptions of the most eminent practitioners.

The lectures will comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws, Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine will also be considered.

Text Book.—Physicians' Manual of the Pharmacopœia and the National Formulary, American Medical Association, Hallberg and Salisbury.

Bacteriology.—The general scope of bacteriolgy; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effect will be considered in the lectures. Attention will be called to the relation of bacteria to disease; the theories of infection and immunity will be discussed and due consideration will be paid to the ferments, ptomains, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances will be noted.

Laboratory work will receive a large share of attention; students will be instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air or water will form an important part of the course.

Text book.—Abbott's Bacteriology.

Applied Microscopy.—A thorough study of important powdered drugs and spices, with their substitutes and adulterants, will be made and opportunity will be afforded the students to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these will be given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibres and textiles met with in commerce will be undertaken and instruction in the microscopic examination and identification of the urinary sediments; blood, pus, tubecasts and crystalline substances will form a part of the course.

Text Books.—Microscopical methods, Gage; Applied Microscopy, Winslow; Microscopy of Vegetable Foods, Winton.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student.with such medicinal plants as our flora provides, will be given and will afford practical field instruction in plant classification and analysis such as will be a valuable supplement to the lecture in that branch.

Text Book.—Gray's School and Field Botany.

THE SHORTER COURSE.

The course leading to the degree of graduate in pharmacy appeals especially to the young men and women who desire to qualify themselves to become pharmacists. Its efficiency is attested by the large attendance. Since the establishment of the college in 1859 nearly 5,000 persons have availed themselves of the advantages afforded by this course and more than 1,300 of our alumni have been awarded this degree. The Ph. G. course will be continued under the same conditions as heretofore. Its curricculum is fully described in the annual announcement. The instruction is so arranged as to require the attendance of each student on three days each week and from twenty to twenty-one hours weekly during two annual sessions of thirty weeks each. This arrangement is most advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses. The opportunities for such employment are unusually good in Chicago, owing to the fact that there are over a thousand drug stores in the city and suburbs accessible to the school.

ENTRANCE REQUIREMENTS.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto.

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and have completed a common school course through eighth grade. Beginning with 1908 this requirement will be increased to one year of high school.

REQUIREMENTS FOR GRADUATION.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the faculty.

For the degree of Graduate in Pharmacy this school has always required practical drug store experience. The actual time of attendance at the school, amounting to fourteen months, is credited as part of the four years of practical experience required for the degree. Candidates must have attained the age of twenty-one years and have satisfactorily finished the work leading to the degree. Students who have successfully met the scholarship requirements, but are lacking in age or in practical experience will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

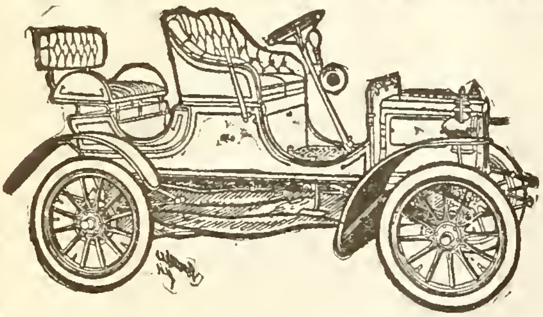
ALUMNI NOTES.

S. L. Caine, '94, was recently elected president of the Mississippi State Pharmaceutical Association.

Jacob Schrodt, '99, has been elected vice president of the Texas Pharmaceutical Association.

Albert Zimmermann, '87, has bought the pharmacy of W. M. Benton, of Peoria.

Andrew Bakkers, Carl G. Carlson, L. L. Huston and Hugh McNair, of the class of 1907, and Raleigh Earle and Alfred Lypski, of the class of 1908, passed the Illinois Board of Pharmacy examination for registered pharmacists. F. E. Blake, '07, Charles Hibbe, '08, M. A. Serritella, '08, and W. E. Ruesch, '98, were registered as assistant pharmacists.



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COLLEGE OF PHYSICIANS AND SURGEONS
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CHICAGO.

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NEURASTHENIA, PROGNOSIS AND ITS RELATION TO MEDICAL SELECTION.

By Twig Brooks Wiggin, M. D.

Prof. Physical Diagnosis College Physicians and Surgeons; Attending Physician Lakeside Hospital, Etc,

Nervous exhaustion[1] or nervous prostration, is a condition of weakness of the nervous system giving rise to various forms of bodily or mental insufficiency. The nervous system does not provide force[2], it utilizes it, and this duty devolves upon it by reason of the perfection of its organization. It is the nervous system which decides at what moment the energy accumulated by the living being shall be liberated;—in other words, shall leave matter and exert its motor functions. By the disturbances entering into it the nervous system receives impressions from the external world of which it thus obtains knowledge, and by its own activity forms a judgment of all surrounding it from the point of view of utility. Finally, it reveals this judgment by a motor act calculated to ensure the preservation of the organism.

Prof. Bartholow thus describes Neurasthenia as consisting "essentially in an exaggerated susceptibility to bodily impression and a false reasoning thereon." The term "Neurasthenia" is an old one but was made popular by Doctor Beard of New York, who used it to characterize an ill-defined group of symptoms which may be general, covering the entire body, or, local, that is, limited to certain organs, hence the divison of the disease into—1 "Cerebral," 2 "Spinal," 3 "Digestive," 4 "Sexual," 5 "Traumatic," 6 "Hernia," and 7 "Hysterical Neurasthenia."

A more modern classification is that of Dana[3] who makes the types of neurasthenia dependent upon the age, sex and hereditary endowments of the individual thus—1, Primary Neurasthenia; 2, Hystero Neurasthenia; 3, Acquired Neurasthenia and Lithemia; 4, Climacteric; 5, Traumatic; 6, Spinal Irritation; 7, Neurasthenia with fixed Idea; 8, Angiopathic Neurasthenia; 9, Grave Neurasthenia. All agree that two essential factors are necessary to its production, an enfeebled nervous system, and an incentive, the irritant.

Etiology. The causes may be considered then as hereditary and acquired.

(a) *Hereditary.* The tale of every neurasthenic includes 1, The sins of the fathers; 2, The birth of a neurotic; 3, Struggle for existence on deficient nerve capital; 4, A bankrupt nervous system.

Children who thus start out in life with defective nerve force seldom fail to show psychic stigmata as; 1, Precocity, or retarded evolution of intellect; 2, Extreme changeableness and irritability; 3, Exaggerated consciousness and a fanatical religious zeal or great moral depravity; 4, Intense egotism with no regard to the feeling of others; 5, Extravagant and cranky motives and desires; 6, One sided talents and disproportionate development of the mental faculties.

"Our lives," says Darwin, are but a bundle of consequences; our present, is but the outcome of the past. Prof. Putnam[4] on the other hand says that "fortunately for the educational outlook, the evidence has begun to accumulate that a morbid inheritance is not the inevitably crushing and baneful thing that it has been thought. We came into the world each one a being of limited capacity, but, in other respects, free to become what circumstances make us, and responsible to the extent of our capacity for our lot." We are coming more confidently to say to the individual hereditarily deficient, "Lead a regular and hygienic life and you have nothing to fear from the taint of Heredity." Nevertheless to prevent an unstable mental and nervous organization, we should begin with the parents and exercise from birth an eternal vigilance, which is the only true passport to longevity and freedom from disease.

The nervous and mental hygiene of the individual consists in the main of making the mind and the body insusceptible to environment by imposing conditions which mean bodily discomfort and mental hardship. Nervousness, while expressive of an enfeebled nervous system for which heredity may be responsible, is nevertheless an expression evoked by some irritant, resident somewhere in the organism other than the nervous apparatus. These irritants may be considered as the acquired causes and are, mental overwork with anxiety, worry or excitement, the abuse of alcohol, tobacco, coffee, tea, bodily disorders, physiologic factors and moral causes. In order to do great things the body's work and the head's work are to be done quietly and comparatively without effort. Great things can only be done by great men and they do them without strain. It is the old story of the Tortoise and the Hare. Neither body nor the brain must be strained to their utmost, but to get the greatest quantity of work out of them, they must be worked tranquilly but constantly, never furiously. The old division of the day into three parts seems rational—eight hours for labor, eight for rest and reaction, and eight hours for sleep. This makes the nervous system equal to its work. We all realise that sleep restores power to the tired brain and that there is a regular loss of nerve vigor from the early morning hours, when it begins, up to the middle of the afternoon when it is best, and at just this time the neurasthenic is most weak. The dinner stimulates the brain masking the depressed state of the nervous system, and later follows sleep, during which, the battery of the nerve cells is recharged at the expense of energy derived from without themselves. The laborer requires less sleep than the man who works with his brain, so occupation predisposes to neurasthenia, and merchants, professional men, teachers and other indoor workers furnish many cases of nervous exhaustion. Their mental application is so profound and intense that they exceed the limits of human endurance without knowing it. It might be advanced as an axiom that to a certain degree every brain worker is a neurasthenic. Life is, with us, so strenuous that mental achievement is only possible with a highly irritable nervous system. "The power of originality in thought is, of itself, a common indication of the insane neurosis" says Mandsley, and this is expressed by the common expression that "Genius is akin to insanity."

Many persons do not realize the great amount of work they do, but blunt their sense of tire by artificial stimulants and excitement. This class soon become addicted to drugs, or end their lives in asylums as paretics. On the other hand we cannot avoid neurasthenia by mental inactivity, for the perpetuation of any living thing is dependant upon the continuance of its healthy activity, and it is rare to find the idler among the very old. Healthy brain activity is just as necessary to life as muscular exercise and so there is much truth in the oft repeated expression that "it is not work but worry that kills." The man whom nothing worries, who is kind, equable in temper, and patient, is the man who has lived wisely but not too well. The ill tempered pessimist with deranged digestion and bloated liver, is the man who has disregarded the natural law of waste and repair and his unbalanced nervous system shows it. Worry, grief, passion and fretting are powerful nervous shocks. Tuke says: "There is no sensation, whether general or special, excited by agents acting on the body from without. which cannot also be excited from within by emotional states affecting the sensory ganglia, such sensation being referred by the mind to the point at which the nerve terminates in the body." These emotional states disturb digestion and impair the vegetative functions of the body in general. Self-control and contentment are powerful against nervous prostration, and those who find it a dificult matter to control the emotions, should know, that mastery can be attained by training. Neurasthenics should avoid exposure to intense emotions as this causes many relapses. Probably the daily newspapers with their sensational contents are a cause of much trouble in this connection and had better be avoided. Alcohol consumed even in the smallest amounts induce organic changes in the nerve tissues like those of old age. After heredity, its use is the greatest single cause of insanity. The psychic degeneration of alcoholism consists of a gradually weakening memory and will, slowness of perception and judgement, loss of the moral and esthetic sense, with paroxysms of depression, anger and irritability. No organ of the body escapes its pernicious action, but as a nerve intoxicant we see the most manifest effects. The nervous individual becomes a victim of the alcohol habit thinking it a stimulant. Its chief action is that of a depressant and under its influence the capacity for work decreases. By obtunding sensation, a temporary release only of the morbid sensations is experienced by the neurasthenic. Morphia and drug habits in general are acquired through their ability to produce this ficticious sensation of well being. Coffee, tea, cocoa and tobacco each produce their vicious effects and particularly may duplicate the symptoms of neurasthenia and should therefore be avoided.

Bodily Disorders. Of this class of irritants Syphilis is a type and the factors of import are: the mental; the poisons of the disease, and the reduced state of resistance resulting from injudicious medication. Influenza is a type of the acute infectious diseases which precede Neurasthenia. Indeed the convalesence of such diseases is markedly accompanied with symptoms of nervous exhaustion. Railway injuries as well as other traumatic injuries accompanied by fright, are followed by traumatic neurasthenia or railway spine, which differs in no respect from neurasthenia produced by other causes. As physiological factors may be recalled, the period of puberty in both sexes, the puerperal state and climacteric in women, as well as the tissue changes peculiar to old age. Every time a muscle is used, less resistance is made by the nerve center in control of that special motion, and so it is with the moral education of the child, the oftener the latter is permitted to do a wrong, the easier will it be to repeat it. "Those who would be young when they are old, should be old when they are young." Old age in youth should mean parental control.

Pathology. Neurasthenia has no definit pathology and all hypotheses which hint in that direction have not exceeded the realms of theory. We recognize the disease as we do the physical forces, by their effects. It is an acute or a chronic functional nervous trouble, manifested by nervous weakness and irritability, in which the patient is easily exhausted, and is acutely responsive to trivial irritations. Physiologic experiments, however, demonstrate that the nerve cells in health are plump, while in fatigue of the nervous system, they become shrunken and are only restored to their original shape and size after a prolonged rest. Whenever brains begin to work after sleep, they are full of nerve fluid which the forces of the body and brain have stored up there. When work begins this vital force is called upon to meet the demands upon the brain until the work ceases or the vital force is used up. When the cell has yielded a proportion of its stored energy,perhaps half, fatigue becomes evident and further work along that line is sure to injure the cells. As all the cells are not involved in any kind of mental work, we have one part of the brain only, actively at work, while the other parts are resting and storing up the nervous force. Thus a man suffering from too much reading, goes walking or riding and feels that he is really resting, other cells being in active work in those muscular exercises, while those which were needed for mental action are in repose. The bodily exercise still drains the brain cells of their stored energy, nor can the cells of the mental type be thoroughly restored during working hours by such partial rest as can be theirs by a change of work. Sleep, or total rest, becomes absolutely essential to their complete return to to their normal shape. The "neuron" theory "of Hodge[5]" is of interest in this connection. He studied the nerve cells of birds and bees before and after fatigue. After rest the cells were large, plump, the nuclei easily demonstrated. After a day's flight the cells became small, the nuclei indistinct, the protoplasm granular and shrunken and the cell processes striated. Dercum claims that in chronic cases of neurasthenia, the blood contains toxic substances derived from the excessive waste of nerve tissue; and Mosso, who injected the blood of a fatigued animal into one at rest, obtained in the latter the characteristic signs of fatigue. The obvious conclusion from these observations is as follows: There is a neurasthenia dependant upon overwork or over functionating, a form specified by Savill[6],as"fatigue neurasthenia," which is dependant upon exhaustion of the nerve cells. Increased function, if regularly and gradually increased, leads first of all to increased growth; if carried to excess, or if it be irregular or spasmodic it leads to waste and degeneration of the tissues concerned. All functions of the body are controlled and operated by the nervous system, which therefore equally dominates the mind and controls the action of the muscles. We have only one brain and nervous system. Neurasthenics mistakenly conceive that we have two, and thus expend too much nerve force in excessive muscular development under the supposition-that they are developing their minds. The study of pathology makes it seem quite certain that disease depends upon an alteration in structure, as evidenced by altered function. The fact that we cannot at the present time detect that change in structure in so-called functional disease, does not prove that it daes not exist. It seems quite probable in the light of the past experiences, that we are unable by the aid of present methods to detect such structural change. So far, we have attributed neurasthenia to overstrain of the nervous system provoked by various mental, moral and physical causes, the result of over-civilization. It must be remembered however, that many owe this infirmity to indiscretions, and still more to morbid organic functions,which if corrected, cure their disease. Among the special irritants predisposing to this disease we may mention disordersof the male and female sexual apparatus, such as impotence, spermattorrhea, prostatorrhea and irritable prostate. Congestions of various organs as, the brain, the retention of the purin or alloxuric bodies, gastro-intestinal auto-intoxication; dyspepsia and defect in the nerve apparatus which controls the supply of blood in the abdominal cavity which Abrams[7] calls Splanchnic neurasthenia.

Symptoms. From the great number of symptoms, often bewildering in their variety, we may select certain symptoms which occur with such frequency and regularity as to constitute a distinct clinical syndrome, and to the practiced observer, almost attain the value, although derived from the patients own statements, of objective signs. These *cardinal* symptoms occurring in different combinations, some predominent in one case, others in another, are fatigue, pains in the head, dizziness or vertigo, mental depression, inability for mental work, various disorders of sleep, irritability of temper, weakness and tremor of the limbs, pains in the back, palpitation, certain forms of dyspepsia, and sexual weakness. These symptoms Charcot termed the stigmata of neurasthenia. "The picture of the neurasthenic presents an insane revelry of the organs, with the mind in the background perceiving physiologic as pathologic functions. The stomach of the patient may cause him untold agony, yet an analysis of the stomach contents shows no anomaly of digestion; examine his palpitating heart, which with every thump increases his anxiety, and you listen to normal tones; and thus as you examine organ after organ there is nothing revealed; your examination is negative, and your negative examination confirms your diagnosis."

The general symptoms may be divided into, (1) Motor disorders, which include a muscular fatigue and (*b.*) tremor which Lamarcq[8] found in 85 per cent of neurasthenics. (2.) Sensory disturbances, as headache with a sensation of great pressure, constantly present or evoked by work or emotion. Backache or a sensation of weakness, the spinal irritation of the older writers is frequent, and so intense as to prevent the patient from sitting or standing for any length of time.

Pains in the limbs, as hot flushes, tingling, cold, numbness, stiffness, soreness, in any and all parts of the body, or becoming fixed in some definite region, as over the heart or stomach, are very common. (3.) Special sensory disturbances.

The Eye. Blurring of the vision on using the eyes in common, and there are cases of neurasthenia which owe their origin to some easily remedied eye defect. Drooping of the lids, inequality of the pupils or excessive mobility of the iris have been observed.

Photophobia and a high and irregular degree of muscular asthenopia which subsides with rest, is frequent.

Disorders of hearing, smelling and taste. Abnormal ringing, singing, whistling and roaring sounds may be heard, although the hearing is intact. Hearing is often hypersthetic and slight noises startle them. This is as much mental as aural and is due to the *irritable* weakness that spares no nerve. Complaints of bad smells and peculiar tastes can be explained in the same way.

Mental Disturbances. The capacity for mental work becomes diminished, and mental effort is attended by a feeling of fatigue and distress. Fixing the attention on anything is deficient, and the ability to originate ideas or think intelligently, becomes lessened or lost. The lack of will power is expressed by vacillation and indecision. Mental inability is pronounced and the patient becomes annoyed at little things. There is a loss of memory. The fear of insanity is common, they become introspective, misconstrue their sensations, and develop *phobias* or morbid fears, which, however, rarely become insane delusions. Imperative conceptions and morbid impulses are not unknown conditions in neurasthenia. Diminished affection for those near and dear to him often distresses the patient, who becomes irritable, fault-finding and resentful. He dreads meeting people and approaches his daily task with a sense of weariness. He becomes emotional and garrulous as to his symptoms. He regards the future with distrust, and fears that he will never get well. His feeling of mental depression pictures all sorts of horrible things. Insomnia is one of the earliest signs. Restlessness is frequent and vertigo and faintness are common. The attacks are usually subjective, short in duration and without nausea.

Circulatory Disorders. The patient is conscious of the heart's action; it palpitates. This may be only a fluttering feeling or it may beat violently and as many as 150 times a minute. The face becomes flushed and after the attacks large quantities of urine are passed. It is most often caused by some digestive disturbance, or may result from prolonged muscular or mental efforts. "Rumpfs symptom" is often present. This consists in making pressure over some painful point in the body, which will bring the pulse up from 80 to 100 or over. Symptoms of heart hurry and precordial pain may be present. These disturbances are most frequent in women, in young persons and in those addicted to the too great use of tea, coffee and alcohol. Hemic murmers are often heard in advanced cases, in which the nutrition has been greatly reduced with the production of anemia and emaciation.

The Pulse. The pulse[9] is more often of low than of high tension[10] and often shows a sudden retardation of the rythm after a sudden change of posture. Flushing and pallor of the skin occur at irregular intervals, especially in women, with cold hands and feet, throbbing noises in the head with fullness, spots before the eyes, etc. Localized or general sweats and aortic throbbing may be frequent and annoying,

Secretory Disorders. The urine is usually scanty and high colored but is passed in large quantities after a "nerve storm," and is then of a pale color and low specific gravity. Phosphates may be present in excess as well as indican or oxalate of lime, when the case is one of the sexual type all fluid secretions are variable as to quantity, they may be increased or diminished in an irregular manner and without appreciable cause. The temperature is usually normal even with the flushing or burning skin sensations.

The Blood is usually normal though some cases shows anemia of the secondary type. The anemia is often associated with insufficient lung development resulting in anoxemia, or lack of oxygen in the lungs, capable of relief only by respiratory exercises,

Stomach Signs. Nervous indigestion is a frequent complication of nerve strain. The appetite may be good, voracious or diminished. The patient has all the symptoms of stomach indigestion, yet the tongue often remains clean and analysis of the stomach contents shows no variation from the normal in the composition of the gastric juice. Nervous dyspeptics soon find that it is not wise to eat too much when nervous or excited, for it is at such a time that gastric symptoms are evident. The gaseous gastric distension causes palpitation, precordial and epigastric pain and a sense of imminent suffocation.

Intestinal Signs. Constipation and torpidity of the bowels go with sedentary habits coupled with excessive eating and a disregard to the calls of nature. The muscular tone of the bowels becomes incapable of moving the fecal matter onward into the rectum. As a result of abnormal retention poisons are manufactured which when absorbed influence the delicate nervous system, bringing on languor, headache, loss of appetite and depression. Persons who suffer thus, are apt to have a muddy skin. dark rings under the eyes, cold extremities, a bad taste in the mouth, dark, offensive and small bowel movements, and a heavy urine which leaves a deposit on standing; mucous enteritis is often seen, especially in females, characterized by the passage at irregular times of imperfect casts of the gut and threads of mucous.

Sexual Signs: In neurasthenia the sexual power is diminished, either by incomplete erections, premature ejaculations or night emissions. Married men find this weakness a source of much mental anguish and are driven by the fear of impotance to seek medical advice. It is no doubt true that the majority of the functional troubles of the sexual organs are of a neurasthenic origin. Involuntary seminal emissions in a healthy unmarried man, occurring at different periods must be regarded as an evidence of good health. It is only when the emissions are followed by depression, vague pains in the head, and a feeling of exhaustion that they are to be regarded as harmful. Very often the impotency is imaginary, a form known as *psychical impotency.* Among the prominent symptoms of sexual neurasthenia are dimness of vision, back pains, mental depression and defective memory, dyspepsia, palpitation of the heart and dizziness. In married women the sexual appetite may be increased, at first, but it rapidly disappears, to be followed often by distaste or even disgust. [11] All unnatural practices are bound to be followed by impotency, and are therefore stigmata of degeneracy.

Diagnosis: The diagnosis of neurasthenia is only warranted after a most painstaking examination of the patient. It is wise to regard neurasthenia merely as a symptom, rather than a disease, and to seek for some local disturbance which reflexly instigates the nervous symptoms. The following affections suggest differentiation: (1) Hysteria. (2) Hypochondriasis. (3) Melancholia. (4) General Paresis (5) Insanity. Fatigue is the primary symptom in neurasthenia, relieved by rest and intensified by exertion. The cause is overuse and abuse of functional activity, abetted by a nervous system, which responds readily to irritants but does not recover quickly. The disturbed action is evidenced by motor, sensory, vasomotor and physic disturbances.

These disturbances are those of iritable weakness and not of actual loss of function. In hysteria we have anesthesias, palsies, convulsions, complete loss of self-control, actual amnesias. True hypochondriasis is a variety of melancholia with actual insane delusions regarding bodily states. In neurasthenia the fears are at least under partial control and may be relieved by a statement of the facts. Melancholia may be distinguished by the frequent pulse, rapid, wasting, continual insomnia, great mental depression with delusions and suicidal tendencies. Neurasthenia is a chronic malady insiduous in its onset and only recognized by the patient after months of increasing disability to perform the usual duties of life. In the traumatic form the neurosis may be suddenly produced it is true, but the symptoms of nervousness, weakness and prostration may develop slowly and gradually and may only be evident after the laps of weeks. Once thoroughly established Neurasthenia tends to persist, and only some decided change in the mode of life is likely to relieve the condition. Even then remissions and relapses occur with any undue strain.

Prognosis: The prognosis is in the main favorable as to life expectancy. As a rule the disease is curable. The duration and permancency of the cure depends upon the individual treated and the judgement of the physician in the application of the means at hand. The individual must be regarded from the stand point of his surroundings and his nerve capital, his surroundings and his habits. The matter of heredity may be disregarded, provided you can make the patient conscious of the fact that healthy nerves depend upon individual effort along the line of a rigid and continuous observance of hygienic laws. If the reserve nerve capital be abundant, a few weeks or months will restore the patient to a condition of well being. The surroundings, financial circumstances and habits of the patient determine the permanency of the cure or the occurrence of relapses. If after recovery the patient returns to his old habits, he soon suffers from a return of the symptoms and either becomes a chronic invalid or acquires a drug habit. One nervous breakdown permanently injures the system and predisposes to other attacks of like character, so that continued health depends upon continued care and a rigid adherence to the laws of right living. Temperance in all things enables the neurasthenic to enjoy life, and the memory of past experiences guides him safely along the narrow path of abstinence and sobriety.

The great difficulty after all is to avoid overlooking some basic organic disease; to rule out all cases of neurasthesia which may be symptomatic of some organic process of which they are but the secondary expression. In a word, to be sure of our diagnosis, and that the case beyond a doubt is one of simple or essential neurasthenia. If this be absolutely known, and proper treatment can be given and continued, the outlook is more favorable both as to cure and length of days. It is often impossible to secure the co-operation of the patient, or the finances may be such as to prohibit the change and prolonged rest necessary to a restoration of health. In this event the prognosis is not so good, for the patient, handicapped by the habits and environment, by the work and worry which caused his downfall, may recover after months, but is more liable to fall a victim to a drug or stimulant habit or to break down completely and become a confirmed invalid. If of a psycopathic family some pronounced mental change may supervene. If the life prospects of a chronic invalid, or one who is thus at least upon the borderland of insanity is as good as that of a person in health, then we must make haste to unlearn all that we know of the human body in health and disease. Speaking generally, cases under twenty years of age are found to yield readily to treatment but to relapse frequently. This indicates an unstable organization. After the age of forty the outlook is less hopeful, as the whole man, physical and mental, has begun to slide down hill as it were, and at least the tissues have lost their recuperative power to a large degree. The patient after this age practically never regains full vigor, if the neurasthenic attack has been at all severe. A psycopathic heredity or evidence of degeneracy likewise reduces the chances for complete recovery. The bodily condition is of little significance as to the outcome, providing that organic disease be absent. We thus often see cases with great weakness and emaciation responding quickly to treatment while others with no marked disturbances of bodily function cannot be relieved.

In my own practice I have noticed that cases of neurasthenia, following the acute infections were difficult to cure. Many such cases seem to develop terminal infections and die within two to five years. I regard the prognosis therefore in such cases as bad, and should in the selection of cases for insurance make my examination exceptionally thorough.

"Man is a creature of habit," and we may reasonably conclude that neurasthenia is, in a word, the result of bad habits. In outlining the future of any case we shoud consider what our experience as physicians has taught us as to the possibility and probability of success in our efforts to change those bad habits into good habits.

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THE RELATIONS OF THE TEACHINGS OF CLINICAL OBSTETRICS TO THE PROBLEM OF MEDICAL CHARITIES.

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Since the abuse of medical charity has come to attract the attention of both the profession and of the workers in sociology it is important and very desirable, if not necessary that every teacher of medicine should look into the methods pursued in his own department in obtaining clinical material in order to discover whether in his efforts to provide material for his students he is not injuring both his colleagues and the community by extending medical charity so as to pauperize the recipients. It is my purpose to study the needs of the clinical teacher of obstetrics and seek to discover whether those needs can be met here in Chicago by the material at hand, that all will admit is proper material for an obstetrical clinic.

I would premise that the problem of medical charity is to give necessary medical assistance to those unable to pay for it in the usual way without doing an injury to the community by tending to pauperize the recipients.

Suffering must be relieved and needed help given to the poor. The general humane sentiment of mankind demands as much. But the physician alone should not be required to render this aid any more than the restaurant keeper should be required to feed the hungry or than dry goods merchants should be compelled to clothe the ragged poor.

This medical aid to the poor can be paid for by the state. The patients can also pay for their treatment to a certain extent by serving as clinical cases for the instruction of medical students. Medical teaching is very important to the community. It is not necessary here and it should not be necessary for any kind of an audience to prove that the welfare of a community demands a well trained medical profession. Moreover, the indigent sick are not injured by being used as clinical material. Indeed, it is generally admitted that in a teaching clinic patients are better served than in a pauper hospital where there are no students.

It is also coming to be recognized that there is a pauperizing tendecy in the bestowal of medical aid without requiring any equivalent. If emergency cases, like surgical accidents, were the only ones thus helped the temptation would not be so great, but when a pregnant woman learns that she can be confined free in a hospital and have the best of professional care and skill, she will make no effort to accumulate means to properly pay for the services of a private physician.

Hence, while it may be necessary for the state to provide medical air for the poor in localities where there are no medical students, still I think it should be the rule that whenever possible all medical aid should be given in teaching clinics.

Can this principle or rule be applied to obstetrical charities?

It is precisely in those charities that all teaching clinics are forbidden, as shown for example by the rules of the Cook County Hospital. It is claimed that the sentiments of modesty of the patient are offended when she is exhibited to students. I do not know that it is ever claimed that she would be less well treated. I believe that the same forces that secure better treatment of patients when students are present to learn and incidentally to criticise, would work in these cases, and even with especial emphasis.

The sentiment of the community on this subject depends largely upon the way private patients are educated by their physicians. There was a time when a physician could hardly inspect the genital region. For example, the student was taught and the physician practiced "catheterizing under the sheet." Earlier still men physicians were never called to obstetrical cases except in greatest emergencies. This is now the situation in some oriental countries. Are the American women of the best classes less modest, less womanly, less civilized, because they are intelligent enough to know the advantages of thorough disinfection and the importance of most careful watching of the progress of labor? An extension of this knowledge to the poorer women and to the community in general will dissipate the prejudices against the proper management of labor in teaching clinics.

Proper management of obstetrical teaching clinics is, of course, very necessary. This implies first a thoroughly competent and responsible teacher. He must not only possess a good degree of skill, but he must also be a good teacher and demand earnest, serious work. He must not allow any unnecessary annoyance to the patient, and especially no unnecessary internal examination. On the other hand, he must insist on a strict watching of the patient.

A second requisite in the proper management of an obstetrical case in a teaching clinic is limiting the number of students. In a private house the number should not exceed two, and in a hospital not more than four to six. Unusual operations may be done in an operating theater, the same as surgical operations, but these operations are, after all, of but little value.

Having decided upon the principles which justify obstetrical teaching clinics, the question arises, are there enough obstetrical charity cases to provide material for clinical students? A second question would be, can the teaching clinic use all of the obstetrical charity cases?

We now turn to consider more closely the educational problem of the requirements of the teaching of clinical obstetrics and ask, (a) how much time in his course should each student give? (b) how many cases shall a student see? (c) what should be the size of the classes? (d) how many cases are needed in clinics?

There is in America a pretty general agreement upon the outline established by the Association of Medical Colleges. This schedule provides for 1,000 hours of work as the proper amount for a year. With 200 days in the course, this is an average of five hours' work per day. Such a basis implies, therefore, that at least one-half of the time of the student is given to the preparation of his required work outside of the class or clinic room. An obstetrical clinic differs somewhat from other clinics in the fact that more time, practically all of the time, must be spent in the clinic room, while the student has, however, much of the time for study during the hours spent by the side of the patient. Now during the four years' course approximately 1,800 hours are spent in didactic lectures, 1,000 in the laboratory and 1,200 hours in clinics. The Association of Medical Colleges ask for only sixty hours for clinical obstetrics out of 1,200 clinical hours. I am certain that this is too little and much too small a proportion. No doubt the reason why the the obstetrical clinic was given so few hours was that very many colleges have so poor facilities for obstetrical clinical teaching that it was considered unwise to make the minimum requirement higher. I believe that all the best obstetrical teachers will support me in the contention that the obstetrical clinic should have at least 100 hours, or one-twelfth of the whole number of clinical hours. This would give at five hours a day twenty whole days for obstetrics.

How much work is required to fill this time profitably? I would answer, on an average of one labor a day combined with at least daily visits to the puerpera and the babies. This work should be divided between the hospital and the out patient maternity dispensary. Each has its advantages. In the hospital the students can see the case conducted in an ideal way, while in the dispensary he learns to deal with patients in their homes and to provide necessary equipment and to accommodate himself to all varying conditions pertaining to private practice. Practically it will be found best to give one week to the dispensary work and two weeks to the hospital.

This basis of work is most easily arranged when six students constitute a class, subdivided into three squads of two in each. With this arrangement a squad of two work in the dispensary while the other four are on hospital service. Of course, members of the hospital squads must be called to cases when several labors occur simultaneously and frequently only one student will be at a case.

In this way seventeen classes can have work each year, providing for 102 students. This would require 365 dispensary and the same number of hospital cases. Each student would see twenty-one cases. To accommodate 365 cases a year in a hospital would require from twelve to fifteen beds. It is not here the place to go into the question of the equipment of such a hospital. If the school has 200 students in a class instead of one hundred, of course, the capacity of the hospital and dispensary should be about doubled.

For the last five years the number of yearly graduates in Chicago has been over 700. For such a number of students over 5,000 patients would be required. Allowing for post graduate instruction we could say that in round numbers about 6,000 patients a year would be desirable to furnish the obstetrical clinics. This would be about one-tenth of all confinements a year. Are there as many poor women in Chicago who cannot pay for their confinements? The investigations of our committee on Abuse of Medical Charities are not yet so complete that we can answer the question.

Dr. Renn informs me, however, that he would not consider that proportion very high. Nevertheless, it is evident that the clinics can take care of all or nearly all of the obstetrical charity cases. It is not necessary then that the state provide for them except as clinical use is made of the cases cared for by the municipality or the state.

The plan outlined above may receive criticism from both laymen and the medical profession. The objections of the former will probably be found to rest upon an unreasoning prejudice againt teaching clinics, perhaps partly supported by mistakes made in the past by clinical teachers. The profession, and especially the school, should recognize their responsibilities to the community and to the cause of medical education and keep a very close and critical supervision over all clinical teaching.

The objections of members of the medical profession who are not engaged in teaching will probably rest upon a certain amount of jealousy of their teaching colleagues. This would be largely avoided if it was apparant that only those patients absolutely unable to pay are taken into the clinics. Some provision certainly should be made to secure an investigation into the pecuniary condition of all applicants for medical assistance. With this arranged all the profession should welcome such a plan of obstetrical teaching as above outlined. We would not only furnish well equipped graduates but the clinics could be utilized by all of the profession of the city for post-graduate work. Such a plan of instruction would soon lift the practice of obstetrics to a plane corresponding to the advance in medical sciences below which it has remained because of the inadequacy of clinical instruction. The benefits to the community would be greater still. Not only would the mortality and morbidity from puerperal infection, which has remained stationary for the last fifteen to twenty years, be reduced, but other accidnnts and affections of the gravida, para and puerpera would be greatly diminished and lead to a great saving to the community in the preservation in health of the most important class of the community, the mothers.

A COMPILATION TAKEN FROM A SERIES OF ARTICLES ON THE RESULTS OF RADICAL OPERATION FOR CARCINOMA OF THE BREAST.

A symposium on the subject of the results of operative treatment of carcinoma of the breast, published in the July number of the "Annals of Surgery," presents a number of considerations relating to this disease, that have an intensely practical interest for the general practitioner as well as for the surgeon.

The statistics presented in these articles very clearly indicate that primarily cancer of the breast is a local lesion, and that radical operation when done early results in a complete cure in a large proportion of cases, and that cures are obtained in many cases in which the disease has extended well into the axillary glands.

Nothing in this study of carcinoma of the breast is so prominently and forcefully suggested as the fact that an early diagnosis made after careful and painstaking investigation of each suspicious case becomes the imperative duty of the attending physician, and the responsibility of the family physician in relation to these cases is greatly increased by the knowledge that early radical operation will probably result in a cure, while delayed operation will probably doom the patient to an early and hopeless recurrence.

Other points of interest in these cases brought out in this series of articles relate to the use of the X-Ray as an adjunct to surgical treatment, the possibility of dissemination of the disease by faulty manipulation of the diseased tissues, the necessity at the time of the primary operation, for radical removal of infected and suspected tissues, and of interruption of the lymphatic channels through which dissemination principally occurs, and the danger of rapid extention after a cutting operation in which infected tissues are incised, as for removal of specimens for microscopical examination, and the greater safety of the Paquelin or actual cautery for such purposes, or at least, the cauterization of the cut surface with carbolic acid.

The remainder of this article will consist of quotations or extracts from the articles constituting the symposium mentioned, abstracted not in consecutive order, but as seems best for the purposes of this paper. Credit will be given each author after the quotations from his paper.

Failures of Early Operators: "The fact that in this country at least a number of the leading surgeons in the generations prior to mine made the pronouncement that they had not in their life time cured a single case of breast cancer, notwithstanding the fact that they removed the entire breast, a liberal piece of skin, and after a fashion, some axillary glands, is strong presumptive evidence that in almost every instance the cancer, as then recognized, had entered the lymphatic vessels." W. S. Halsted.

Conditions Influencing Results: "As affecting the ultimate result, the variety of the cancer, the time elapsed since its appearance, the degree of outlying involvement, the activity of the gland (lactation, age of patient), the thoroughness of the operation, are important factors."—Halsted.

"Following the method adopted by Dr. Halsted we have arranged this report under the following headings: 1, Extent of Involvement. 2, Variety of Cancer. 3, Duration of Disease. 4, Magnitude of Operation."—R. E. Greenough, Simmons and Barnes.

The Extent of Involvement we have found somewhat difficult of determination, but we have attempted to express it under the following conditions:

1. *Adherence of the Tumor to the Skin.* This was present in 262 cases, with 16 per cent of successful operations, and absent in 71 cases with 32 per cent of freedom from recurrence. The chances of relief appear to be twice as good as when the skin is not adherent to the tumor.

2. *Adherence to chest wall* occurred in 45 cases with 11 per cent successful results. No adherence was detected in 194 cases, with 21 per cent free from recurrence.

3. *Enlarged glands in the axilla* were felt before opera-

tion in 236 cases, with 12 per cent freedom from recurrence. No glands were felt in 117 cases, with 29 per cent successful results. This suggests that the absence of palpable enlargement of the axillary glands is a favorable indication in spite of the fact that the glands removed as a routine measure are almost invariably found to be malignant.

4. *Palpable enlargement of the glands above the clavicle* occurred in 40 cases of which only 2 survived and those were cases in which the enlarged glands were removed and found not to be cancerous on microscopic examination.

5. *Involvement of both breasts*, which occurred in 6 cases was invariably fatal.

6. *Ulceration of the tumor* is also of bad prognostic import. Of 60 cases in which the tumor had progressed to ulceration 6.6 per cent recoveries took place, while in 316 cases in which no ulceration was present, 11 per cent were free from later recurrence.

The varying degree of malignancy of the different varieties of cancer of the breast has received attention from many writers. Of our total of 376 cases analized, in all but 39 the report of a pathologist upon the tumor was available. One hundred and twenty-seven reports gave "cancer" only as the diagnosis without specifying the variety. The percentage of successful cases for the different varieties of carcinoma was as follows: 1. Medullary carcinoma, 16 per cent; 2. Scirrhus carcinoma, 23 per cent; 3. Adeno-carcinoma, 47.6 per cent; 4. Colloid, 66 per cent; 5. Paget's Disease, 12½ per cent; 6. Cancer in the lactating breast, 28 per cent.

Duration of the Disease: The study of the duration yielded no conclusive results. In the individual case there is no question but that the duration is of the greatest significance, but when taken in connection with other more significant factors, such as the extent of involvement and the variety of cancer, the effects of duration seem to be obscured. Freedom from recurrence was obtained equally in cases of long and those of short duration.

The operations performed upon those cases were divided into four groups—complete, semi-complete, incomplete and palliative.

1. *Complete operations* were performed on 160 cases, in this group are included all operations in which the whole breast, axillary contents and sternal portion of the pectoralis major were removed. Of the 160 complete operations 16 per cent were successful in preventing recurrence of the disease. In 26 of the 160 cases the neck was dissected and lymphatic glands removed, but in only one case in which the glands removed were found to be infected was the operation a success in preventing recurrence.

The amount of skin removed with the breast has seemed to us a matter of great importance. In 67 of the complete operations so much skin was taken that a plastic operation or skin graft was necessary to close in the defect. The end results of these cases were better than those in which the skin edges were readily drawn together; 57.6 per cent of the plastic operations remained free from local recurrence in the scar while only 44 per cent of the sutured wounds were thus successful.

2. *Semi-complete operations* were performed in 75 instances. These were exactly similar to the complete operation with the exception that the pectoralis minor was not disturbed; 25.3 per cent remained free from recurrence.

3. *Incomplete operations.* Eighty-five cases, most of which were operated upon in the earlier years of this period, did not fulfill the conditions of the modern operation. In most of these the pectoralis major was not removed. In other cases part of the breast or part of the axillary contents were left behind. The results however, were astonishing. 22 cases or 29.5 per cent remained free from recurrence.

These figures are at first sight a little disconcerting but on consideration we have decided that the paradox of more successful cases with the less extensive operations is due to the selection of cases suitable for operation. Before the days of the complete operation only the most favorable cases were considered suitable for a radical cure. As the complete operation developed more and more advanced cases were submitted to operation in the hope that they too might be saved. There are a number of Surgeons in the hospital [Massachusets General] who perform a complete operation in practically every case in order to give the patient the benefit of every possible chance of cure. Other surgeons reserve the more extensive operations for the earlier and more favorable cases.

The advantage obtained by the removal of the pectoralis minor appears to consist in the greater ease with which the upper axilla can be dissected. It is not apparent that this muscle is especially liable to infiltration.

4. *Palliative operations*, without hope of cure were performed in only 56 cases. In all these cases cancerous tissue was supposed to have been left in the wound. Four cases however,remained free from recurrence of the disease. —"Greenough, etc."

The operation. "Though the area of disease extend from cranium to knee, breast cancer in the broad sense is a local affection, and there comes to the surgeon an encouragement to greater endeavor with the cognition that the metastases to bone, to pleura, to liver, are probably parts of the whole and that the involvements are almost invariably by process of lymphatic permeation and not embolic by way of the blood. Extension, the most rapid, taking place beneath the skin along the facial planes we must remove not only a very large amount of skin and a much larger area of subcutaneous fat and fascia, but also strip the sheaths from the upper part of the rectus, the serratus magnus, the subscapularis and at times from the latissimus dorsi and the teres major. Both pectoral muscles are of course removed."

"As to the closure of the wound I should not care to say 'Beware of the man with the plastic operation.' The surgeon should familiarize himself with the principle of the one or two particular plastic operations which make the best use in the simplest manner of any redundant or easily glideable skin, as of the axillary flap, that he may be prepared in any case to utilize in combination with skin grafting such feature as seems applicable. But to attempt to close the breast wound more or less regularly by any plastic method is hazardous and in my opinion to be vigorously discountenanced. The oval flap, whatever the direction of its long axis, removes as far as the cure of the disease is concerned, a circle of skin whose diameter is not greater than the short axis of the oval. I still believe in the removal of a very large circle of skin and endorse the remark of my ex-house surgeon, Dr. Follis, that the operator, whose duty it is to close the wound, should not be entrusted with the planning of the skin incision. Occasionally and happily with increasing frequency, an incision for diagnostic purposes has to be made. Great care should be exercised to make these exploratory cuts no deeper than is absolutely essential. Rarely is it necessary to carry the knife into the cancer, for on exposure of the subcutaneous fat the tell-tale drawing of the fibrous tissue is revealed; sometimes the fat must be cut into for a little distance."

Caustics. I am indubitably convinced that the local and regionary recurrences after incomplete operations which come as a rule with amazing rapidity when the knife has been used are, to say the least, relatively late in making their appearance when chemical or actual cauterization has been employed. I have several times had occasion to operate upon cancers which had been vigorously and repeatedly treated with caustics, and to note the comparatively admirable condition, the freedom from cancer permeation of the surrounding tissues and of the axilla. Whereas, after the incomplete operations with the knife the local manifestations of recurrence were almost invariably deplorable and the prognosis, of course, invariably hopeless."

"It was my practice at one time in making the exploration in doubtful cases to excise a portion of the breast tumor with the Paquelin cautery. The excision of a portion for examination is never resorted to except just before operation. If the actual cautery for any reason is not used the wound is immediately cauterized with carbolic acid."—Halsted.

THE X-RAY AS AN ADJUNCT TO OPERATIVE TREATMENT.

It has seemed proper to use X-ray treatment systematically in all casses after operation. The following cases seem to be sufficiently interesting to justify special abstracts of their histories:

Case 87. Age 28, operated May 17, 1901. Six months later she had a recurrence in the line of incision with numerous nodules in the skin, a recurrence in the axillary and cervical glands and apparently a carcinoma in the cranial cavity causing a marked protrusion of the right eye. All of these disappeared under X-ray exposures. The patient was last heard from one year ago. She was perfectly well at this time.

Case 96. Age 60, had recurrence one year after operation. This disappeared under X-ray exposures, but recurred two years later, from which she died.

Case 125. Age 50. Operated upon January 24, 1904. following this had recurrence in scar. Was given vigorous X-ray exposures with very little benefit. Arsenic was applied to wound causing necrosis of considerable amount of tissue. Wound healed completely. Patient perfectly well now.

Case 163. Age 54. Primary operation February, 1900. Rapid recurrence. Second operation, October, 1900. A few months later had second recurrance involving the axilla and the cervical lymph glands and the tissues of the scar, making operative treatment apparently hopeless. This disappeared under X-ray treatment and remained well for four years. Third recurrance began one year ago. This was excised December 10, 1906. Has had X-ray treatment most of the time for the past five years. Examined May 20, 1907. and found well.—A. J. Oschner.

"For the past two years, when it has been possible to do so, the patients have been given weekly X-ray treatments for at least three months after their recovery from the operation."—Nathan Jacobson,

"In one case above alluded to, an inoperable cancer was treated by the X-ray for nearly two years, and it was the opinion of those who watched the patient that the growth was checked and delayed by this treatment. Case 27 is another in which the X-ray seemed to have a decided effect in retarding the growth. It is now my practice to give each patient a course of X-ray treatment immediately after the operation, with the idea of destroying any bits of cancer that may have escaped removal."—A. T. Cabot.

SUMMARY AND CONCLUSIONS.

"Out of 416 cases of primary operations for cancer of breast at the Massachusetts General Hospital from 1894 to 1903 inclusive, 376 cases were traced to a conclusive end result at an average period of eight years after operation.

"Sixty-four cases were alive and well and 7 died without recurrence over three years after the operation.

"Cases in which the tumor was ulcerated or was adherent to the skin or the chest wall, and cases in which the axillary glands were palpably enlarged gave notably less promising results than when these conditions did not exist.

"No case with palpably enlarged cancerous glands above the clavicle, and no case of cancer of both breasts was cured.

"Medullary carcinoma was more grave than that of the scirrhus type, and adeno-carcinoma and colloid were relatively of a far less malignant type.

"Extensive operations with wide removal of skin gave the greatest freedom from local recurrence."—R. B. Greenough, Etc.

"It is altogether probable that a fair part of the improved end results latterly achieved is due to the fact that the public has for over twenty years been educated to the importance of early interference in breast cancer."—Joseph Ransohoff.

"As we view the results of operative procedure undertaken for carcinoma of the breast, we can warrant the assertion that the present operative technique developed as it has been along the lines of pathologic research, has fully verified our expectations, and justifies the statement that except in the very acute cases a timely operation radically performed will completely remove the carcinomatous disease and prevent recurrence in the majority of cases.

"There can be no doubt that the removal of recurrent growths may be followed by lasting cures."—Jacobson.

"A review of this series of cases, although incomplete, seems to show that if the very complete operation which is now generally practiced is employed in these cases reasonably early, there is much reason for expecting a fair percentage of permanent cures."—Ochsner.

"Fortunately we no longer need the proof which our figures so unmistakably give, that the slightest delay is dangerous and that, other things being equal, the prognosis is quite good in the early stages of breast cancer."—Halsted.

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Send contributions to A. R. Johnstone, M. D., Editor, 4147 Lake Ave., Chicago.

SUPPURATIVE APPENDICITIS WITH PERITONITIS

Many cases of appendicitis reach the hospitals in the suppurative stage, with circumscribed abscess, localized peritonitis with free pus in the cavity, or general suppurative peritonitis. There are several reasons for this; error in diagnosis, competent surgery unavailable, prejudice against operation on the part of the physician or patient.

With respect to diagnosis the most important item is that of history, i. e., an accurate account of the symptoms in the order of their occurrence. In typical or acute attacks they are almost always as follows: severe colicy abdominal pain, vomiting or nausea within a few hours, acute sensitiveness over the abdomen with rigidity greater over the right iliac region, and temperature. With the occurrance of temperature following in the above train of symptoms most surgeons agree that operation should be done, however they may disagree on the propriety of operation in a later stage.

Fortunately there is now in almost every community some one competent to operate, although to do so is not always the easy and simple matter it is sometimes considered. It is easier to get the patient's consent to an operation now than formerly. Notwithstanding these facts the suppurative form of appendicitis with peritonitis frequently comes to the surgeon; and in the past few years improved methods of treatment have greatly reduced the mortality.

In circumscribed abscess adherent to the abdominal wall in front, incision is made over the tumor, as swelling is always present and nearly always palpable in such cases. When the abscess is opened the incision should be enlarged cautiously to avoid passing the limit of adhesions. The cavity is then emptied, carefully sponged, the wound held well open and careful inspection and digital examination made. If the appendix can be removed without too much interference with the walls of the abscess cavity it should be done. And this can be done more often with greater experience. In case of doubt the patient should have the benefit and simple drainage preferably with a tube, and gauze should be inserted.

Where the abscess is not adherent to the abdominal wall the incision should be ample to afford systematic placing of drawn gauze strips so as to completely surround the tumor and wall it off from the rest of the abdomen, before effort is made to enter the abscess. If omentum covers the tumor it may best be detached by beginning at the outer border; frequently the abscess will be discovered when this is done; if not the relation of the appendix and cecum to the abscess can usually be determined. In these cases more often than in those first described the appendix can be removed safely.

In fact it is seldom one needs to leave an appendix in such cases. After evacuating the abscess inside the ring of protective gauze, removing the appendix, and carefully sponging, tube and gauze drainage is used, and provisional sutures placed for tightening when the drainage is removed. If there is reason in any case to suspect contamination outside the gauze dam, a tube should be placed to reach the lowest point in the pelvis and in the right flank if needed, the patient placed in the Fowler position.

In case of local peritonitis with pus free in the abdomen and in cases of general peritonitis, there is often a surprising quantity of pus in the pelvis which may be overlooked if the fact is not born in mind. After removing the appendix and evacuating the pus thoroughly an ample tube drain should be placed to the lowest point in the pelvis and also in the right flank; while flat gauze should be placed so as to reach the median line in front of the viscera, the gauze drainage inserted to the stump of the appendix. The patient is then placed in the Fowler position and inclined to the right side.

With this treatment the mortality has greatly decreased, except in advanced general peritonitis where the intestines have become paralized by infiltration or agglutination of their wall, and the patient overwhelmed by infection. Probably the mortality is still ten times as high in late cases as in early ones, and certainly hernia is more frequent; so that the better results that now obtain should not be used as an argument against early operation when that is practicable.

Wm. M. Harsha, M. D.

STREET ACCIDENTS.

The Journal of the American Medical Association, Aug. 24, 1907, commenting editorially on the duty of physicians to persons injured in street accidents, says that many physicians in large cities deliberately avoid these cases, and gives as reasons for this attitude that the physician frequently is without instruments, dressings or medicines, and the physician knows that the bystanders will have called for an ambulance and that in a few minutes the patient will be taken to a hospital where he will be properly cared for. The writer in the Journal very properly deplores this tendency to shirk a humanitarian duty, because the physician even without his instruments might be able occasionally to save a life by arresting dangerous hemorrhage or by the application of artificial respiration in cases of electrical shock, etc.

I take it that the reasons given for the avoidance of street accidents by physicians are not the only reasons why doctors avoid these cases. The doctor cannot justly be charged with carelessness of human life or reluctance to give time and services free to any unfortunate who has been injured, but when he has given improptu service to a number of such cases he comes to realize that he has very few opportunities to save a life by stopping hemorrhage or applying artificial respiration, and he soon comes to dislike very much the spectacular performance of trying to do something for an injured patient without facilities of any kind and in the presence of a crowd of ignorant, curious and often impertinent people, who gather on the street. Then frequently enough as a sequel he is subpoenied to appear in court and give testimony in order that the injured individual may make some corporation pay for the damage done to him, and for this service he often fails to get more than the legal court fee of one dollar and car fare.

This argument may appear to place humanitarism on a commercial basis, but the commercial aspect is only one of the considerations that influences the average physician against the street accidents, and not the most important one I am sure. The injury to one's feelings in being crowded by a rude and curious mob and the inability to do any service of real value to the patient in a great majority of the cases, leads most of us to shun the street accident.

NOTES AND COMMENT.

Dr. M. E. Lane. of the class of 1887, has practiced medicine in Little Rock, Ark., for the past six years. On account of ill health in his family he has felt obliged to return to Chicago, and is now located on Rhodes Avenue and Thirty-seventh Street. The doctor regrets having to leave Little Rock, to which city he had become greatly attached.

Dr. H. H. Hattery, of the class of '84, has left Chicago and located in Plaines, Montana. We are informed that Dr. Hattery is doing very well.

Dr. Willis Keith, '06, is in charge of a physician's practice in Grand Mound, Iowa. He reports that he is acquiring the feeling of chronic tiredness that belongs to the busy doctor.

Dr. Rach, '06, was operated on for acute appendicitis at the St. Bernard Hospital. The attack was very severe but his condition is now reported as being very favorable.

Dr. James H. Stowell has resigned from the chair of Senior Medicine and the position of Dean of Dearborn Medical College.

Dr. Channing W. Barrett has been appointed Gynaecologist on the staff of the Chicago Policlinic.

Dr. Frank Merritt, class of '05, has completed his interneship at the Chicago Hospital, and has accepted a position with the Illinois Steele Company, in their hospital at Milwaukee.

Dr. F. B. Clark, of the class of '07, has been appointed to the position of physician at the state asylum at Watertown, Ill. This appointment is made through civil service examination.

The West Side Hospital is organizing a Post.graduate department which it is expected will commence giving clinical instruction early in the new year.

Extensive improvements have recently been made in the Lakeside Hospital. The appearance and convenienae of the main corrider and offices of the hospital have been greatly enhanced.

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BATAVIA, ILL., SEPTEMBER 20th, 1907.

BLEACHING TEETH.

By R. B. Tuller, D. D. S.

The process of bleaching teeth is, in many instances, a very simple one; that is to say, the technic of the operation is usually simple, though painstaking care must be exercised in every step. As the causes of discoloration or pigmentation are several and of varying persistency, according to the chemical changes that have been going on in the chamber of the tooth, varying degrees of success are obtainable in bleaching.

In the first place all surface stains and deposits must be removed. Then the tooth, together with its neighbor on either side must be isolated by the rubber dam, after which the teeth should be cleansed well with alcohol. When the opening into the chamber and roots is secured, the interior should be washed out with alcohol, which removes debris that is frequently the prime cause of discoloration by simply reflecting through the translucent tooth.

Now, bleaching, it must be understood, should not be undertaken until all treatment required to render the tooth aseptic has been done and the roots permanently filled. No attempt at bleaching should be made with an open apex. It is desirable, however, to have the bleaching agent reach as much of the interior of the tooth as possible, hence if roots have been filled full the removal of a goodly portion is indicated, to be refilled, of course, after the bleaching, but preferably with the same light cement that is used to fill the chamber.

Three per cent dioxygen will have some effect in restoring the correct shade to some discolored teeth, the process being to repeatedly saturate the interior of the tooth.

A 25 per cent strength is more efficient, and especially the more the tooth needs bleaching. With 3 per cent dioxygen at hand, it is easy to secure 25 per cent in a very few moments by evaporating or boiling down to about one-eighth of the quantity. This should be done, however, in a glass test tube rather than in a metal receptacle, and it should be remembered that a 25 per cent solution is somewhat escharotic if it comes in contact with lips, face or fingers; and clothing should always be protected when using any of the peroxide of hydrogen preparations, as it takes out color and eats holes into fabrics.

The bleaching process may be carried out until the tooth is a few shades lighter than its fellows with a certainty that the shade will deepen when again in its natural habitat, the fluids of the mouth.

It is well usually to allow the tooth to go for a while with a temporary filling, provided it is absolutely sealed against ingress of external fluids and agents, for a repetition of the bleaching process may be in order. Not, however, if the first has been as effectually done as it should be and under proper conditions.

Teeth being translucent, the discoloration is often due only to the presence of the dead dark mass of pulp, the removal of which, with the efficient washing out of debris, is quite sufficient to bring back a natural color, and particularly when the contents of the chamber have been changed from a dark mass to a light one, i. e., cement.

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THE COLLEGE.

The attendance at the school of Pharmacy promises to be larger than usual this year. The indications are that it will reach the two hundred mark, which will be a gain of twenty per cent over last year's enrollment.

The equipment of the new chemical laboratory for Ph.c. students has been completed. It will provide ample work-desks for sixteen students, with an abundant supply of gas and water, also drains. filter pumps, fume hood, etc.

During the summer, the halls and laboratories have been calcimined, cleaned and put in excellent repair, a number of new microscopes and some other apparatus have been purchased and fifty-four new steel lockers have been installed, thus providing lockers for two-hundred and eight students.

The building is now fully ready for the reception of students and apparently will be well filled.

THE EBERT MEMORIAL FUND.

The Alumni Association of the School of Pharmacy of the University of Illinois—Chicago College of Pharmacy—has started a memorial fund for the late Albert E. Ebert which may be used to establish an Ebert scholarship in the

School, if a sufficient amount is received. The following contributions are announced;

Almerin W. Baer, President, Chicago	$ 5.00
Albert H. Clark, Secretary, Chicago	5.00
Rudolph E. Rhode, Chicago	10.00
Wm. B. Day, Chicago	10.00
Clyde M. Snow, Chicago	10.00
Louis Lehman, Chicago	10.00
Fred M. L. Meixner, Chicago	5.00
Albert D. Thorburn, Indianopolis, Ind	5.00
F. M. Goodman, West McHenry, Ill	5 00
Henry S. Wellcome, London, England	100.00
Total	$165.00

Contributions from the Alumni are solicited and may be sent to Albert H. Clark, Secretary, 36 East 12 Street., Chicago, Illinois.

ALUMNI NOTES.

Dr. Otto Balensiefer, '97, (P. & S. '02) and Miss Helen Wilson were married in Chicago, August 31st. 1907. Dr. Balensiefer and his bride will reside in Peru, Ill., where he enjoys a large practice.

G. A. McCórmick, Jr.,'02, has purchased a drug store at Ashland and Leland Avenues, Chicago.

W. R. Phillips, '01, has bought Turnquist's Pharmacy, 2458 Wentworth Ave., Chicago.

A. E. Meinzer, '99, is traveling in California.

Robert Mosser, '91, is a student in the University of Illinois, College of Medicine.

P. C. Johnson, '04, is now located in Pathfinder, Wyo.

Guy G. Dillow, '05, is clerking in Cairo, Ill.

Samuel Case, '86, is now at Steger, Ill.

Dr. Egil T. Olsen, '98, has returned to Chicago where he will engage in medical practice. Dr. Olsen has been assistant surgeon in the U. S. Marine Hospital service for several years.

Alumni who visited the school recently were E. O.

Haschenburger, '95, of Lincoln, Nebraska; Clyde Townsend, '96, of El Dorado, Oklahoma and W. S. Voit, '92, of Warren, Ohio.

ON THE RELATIONS OF PHARMACISTS TO PHYSICIANS.

By Solomon Solis-Cohen, M. D.

At the recent meeting of the American Pharmaceutical Association, Dr. Solomon Solis-Cohen, of Philadelphia, was introduced as a delegate from the Medical Association and delivered an address which was received with much enthusiasm. Dr. Cohen said:

"It is my pleasure on behalf of the American Medical Association to extend to you hearty congratulations and fraternal greetings. The great progress which your association has made in scientific achievements and along ethical lines has been observed by the American Medical Association with great delight, and we, on our part, have taken every encouragement and inspiration from your endeavors in our common need; for—let those who wish it otherwise say what they please—there is, and always will be, between the true physician and the true pharmacist the most cordial the most brotherly relations.

"On behalf of the association which I have the honor to represent—the only organization that can possibly claim to voice the sentiment of the united medical profession—I have already discharged a pleasant duty; and now I beg your indulgence for a few moments to say something for myself, because I do not care to make the American Medical Association responsible for any personal utterance. I feel, however—and I have a right to feel—from my talks with my colleagues and from our work in common in the section on pharmacology, which I more immediately represent, and also in the section of medicine, and from all that I can gather from those journals which have the right to speak for the dignified medical profession of the United States—I say, from all these things I believe that what I have to say is shared by the physicians; yet, after all, I cannot speak officially, except in the restricted official terms.

"For the last few years pharmacists and physicians, working hand in hand, have set themselves to change some of their mutual errors and mistakes of the past. It lies not in the mouth of the pharmacist to reproach the physician. We have erred mutually, we have erred together, and we are determined to redeem ourselves together. As for the mere trade in patent medicines, in frauds and fakes, the deceit of all kinds, this does not concern us. There are crimes outside of the ranks of medicine and outside of the ranks of pharmacy, and we are not starting off on a general reform expedition. There are other organizations and other agencies for that purpose, but the movement to make the drugs—whether the product of the manufacturing houses or the product of the individul pharmacist—which are dispensed over the counter upon our prescriptions, what they purport to be, is one in which you and we have a common interest and in which our patients have the greatest interest of all. I recognize and you recognize—we must recognize—that in the general progress of science and the general advance of discovery, and the general progress of the arts of manufacturing and preparation of crude pharmaceuticals there is abundent room for large manufacturing houses which devote themselves to specialties of various kinds. For example, how can the individual pharmacist undertake to prepare and supply the great group of animal extracts and serums, which now have such a large part in the therapeutics of today? And so even with various galenicals, alkaloids and the like. There are many things which the retail pharmacist cannot do as well as that establishment which possesses the proper facilities and which is thoroughly organized to do well on a large scale what can only be done imperfectly on a small scale. We all recognize that, and the American Medical Association has taken steps, individual physicians have taken steps, to place themselves in proper relation with the great manufacturing houses, which are a credit to American pharmacy and to American business.

We want to have the most cordial relations with them, so that these firms may be encouraged to prepare and offer to us for the benefit of our patients the best and purest and most definite pharmaceutical products. And yet, after all, there is a place, and there must be a place always for the individual pharmacist, the retail druggist, call him by whatever name you please, for the individual who practices as a scientific man the profession of pharmacy.

"I have no reproach to cast upon trade. Trade is necessary; trade has built up the country and will continue to build up the country. Trade has given to the physician and to the pharmacist the products of distant lands, which the individual could not get at and gather for himself, and trade and pharmacy are often on the part of the individual necessarily associated. But I do quarrel—I have an intense and personal and prefessional, and an unerring quarrel—with those who wish to say that pharmacy is only a trade. And a still more bitter quarrel with those who reply to all questions of justice and progress and truth and honor. "Oh, that is a matter of ethics, but this is a matter of business!" I resent this. My father was a man of business, and I take it as a personal insult to his memory when anybody says business and ethics cannot be carried on hand in hand (applause); that there is anything whatever in trade or commerce which necessarily imposes falsehood and lying and dishonesty upon man It is not true, and the men who should resent it the most are the business men, the men of pure business themselves. The profession of pharmacy and the business of pharmacy and the trade of pharmacy can go along all together upon the most noble principles and upon the strictest ethics; and unless there is a stringent standard of ethics held by all such associations as this and its branches, and unless that standard is strictly enforced upon all the members, upon the manufacturing firms and upon the individual pharmacists and upon the pharmacists' clerks, and upon the professors in the colleges, and the authors of the text-books, and the students and all—I say unless the standard is held up and its rules enforced, then pharmacy as a science is doomed to disappear and the trade of furnishing drugs will fall to the level of the patent medicine business—and I know of no lower one.

"The dependence of the patient on the physician is reflected in the dependence of the physician on the pharmacist. It is true that the greatest advances which have been made in medicine are those of preventive medicine and hygiene and sanitation. We are aiming to teach the people how to live rightly and to avoid disease. We aim to teach communities how to purify their water and keep their streets clean, and incinerate their garbage, and do all things necessary to wholesome environment to the individual. It is also true that when disease has occurred we make use of what I have ventured to term Physiologic Therapeutics, the use of air and sunlight—other methods than that of drugs; food and water and exercise; all those methods which are most potent in restoring man to his normal condition. Yet beyond the domain of preventive medicine and beyond the domain of physiologic therapeutics is that great domain of disease to which remedy and alleviation of disease can be made best by those means which you gentlemen of the American Pharmaceutical Association give to the physician. You, by your science and your skill, by your knowledge of chemistry and your industry, search the world over to find means by which the physician may relieve the distress of his patient, and when a thing does not exist in nature you chemists go into the recesses of your mind and search it out there and produce it by your skill, and give it to us, and for that we and our patients are thankful. We depend upon you, therefore, to prepare for us that which exists in nature and to find for us that which art alone can furnish.

"Going back once more to what I said in the beginning, if you have made mistakes in trade, or science, or art, and if we have made mistakes upon our part, I say that we are not to get together for recrimination, but we are to get together for amendment and improvement, we are to work for the elevation of medicine and for the inseparable progress of pharmacy.

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS

MEDICAL DEPARTMENT OF THE

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CHICAGO.

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HOW DOES THE STUDENT PREPARE HIMSELF FOR THE PRACTICE OF SURGERY?

By Carl Beck, M. D.

Professor of Surgery University of Illinois; Surgeon North Chicago Hospital.

Surgery is at present the specialty of our profession to which most of the students aspire. The reason is easily found. It shows the most positive results to the laity and to the profession, it brings the success more promptly and effectively before the public, and last, not least, it is more lucrative than the mere practice of prescribing.

Surgery has risen from mere handicraft to science. It used to be in the hands of a few skillful, brilliant men; now it is common and universal.

A very important question for the student is: have I the talent and how shall I go about it to become a surgeon.

Of course there are many ways that lead to Rome and many methods that bring the desired result, but some are shorter and some are better than others.

There is one man who after finishing his medical course goes into general practice all alone, without teacher, without hospital experience, "does" surgery as it comes to him in his practice, operates and succeeds. After years he becomes expert and drops everything else but surgery, begins to study after years of practice the incunabula of surgery, histology, pathology and bacteriology; takes yearly or more often a course in postgraduate work; there is another one who after finishing school goes through laboratory, clinic and clinic, studies and assists, and finally after years of preparation begins to practice slowly, gradually, and after years stands there where his confrere, whom I mentioned above, stands. There is still another and another way: they all lead to good results, because the men who have followed that course had one of the most perquisite qualities in them, *enthusiasm.* No matter how well fitted a man may be, no matter how much good luck he may have, unless he is enthusiaseic he cannot be a real surgeon. This is so well expressed in a letter of Goethe to Whitier as Billroth quotes it at the introduction to his lectures: "Lust, frende, Theilnahme an Allen Dingen ist das enizige Redle und was wieder Realitat hervorbringt; alles andere ist citel und vereitelt nur." (Enthusiasm and interest is the only real thing that can produce real results; everything else is futile and can only destroy.)

Enthusiasm may overcome many difficulties, even talent may be supplanted by continuous exercise and studies if we remember how Demosthenes overcame the difficulties of speech and became the best orator, nobody needs to despair.

A second and less important factor in the development of the surgeon is health. It is no practice of leisure and ease; it requires muscle and no lazy man can do well in this specialty. Talent, enthusiasm and health therefore is the basis, but without a good chance it will be a very hard and uphill work.

The good chance consists in the good fortune to find a surgeon whom one can assist and of whom one can learn practically the art of surgery. No matter how many surgeons one visits, how many clinics the student visits, no matter how much he knows by theory, it will not make him a surgeon if he has not the chance to have a direct teacher. This fact is evident from the study of the lives of the great surgeons of the past and present.

The Medical School can give to the student only an outline of studies, a mere direction how to see, how to judge, how to treat, but even these instructions are not exhaustive. How many cases can a student see during the course of studies and how many can he study exhaustively from beginning to end—hardly any. How then will he be able to do the work alone? Only by learning it from himself—as an auto didact—unless he has the good fortune to be associated with one who knows and who had that good luck himself.

Hospitals are the school where the surgeon learns practically—but not the material, not the fine equipment of these hospitals forms the school—no, only the men who are in charge of the work. If these men are good surgeons themselves, if they have gone through one of those regular schoolings, then they will have good pupils.

In foreign countries this idea has been recognized long ago and it has been practically followed. One can be a professor of surgery only, if he has been assistant for many years to a professor and often they make a man wait until he is grey before they give him a chance. In this country it is only of late that long apprenticeship is followed in our surgical education, as a rule the young men have thought to know enough "to operate themselves after a curriculum of a few months of hospital interneship. To operate does not mean to be a surgeon, and success of operations is not successful surgery.

To go a little more into detail I would say that to learn surgery means to learn two things. To diagnose and to operate. To diagnose means to know every detail of all branches of medicine in general, to be a good general physician, and only as such, one can diagnose and formulate the indication to do, or what is often more difficult, not to do an operation. To operate means to know the technique of operations, but more than that to know surgical pathology and that means pathology of the living. I want to dwell a little on this study. One can learn this branch of our science only as a practical surgeon. In former times all the knowledge of disease was obtained by clinical observations and most all the knowledge of internal changes by post mortems

There is a vast difference now since we have attacked morbid conditions during almost all the stages of pathologic processes, we have obtained by observations practical knowledge of these changes and through these methods we have made more progress in ten years than in fifty before. We can tell now for instance the beginning of an inflammation of an appendix, the formation of an ulcer, the differences of peritoneal infection and irritation, of beginning gangrene, etc. To learn all this it requires the surgeon to see from close distance and to feel with his own fingers. Such a chance however has one only when he is an assistant and can get information from one who knows. Herein lies the great advantage of being an assistant to a good pathologist and a surgeon. During a school period such knowledge cannot be imparted.

One more point: Is it necessary, to travel abroad to learn surgery—emphatically no. To learn surgery I think the dream of knowledge seekers is slightly reverting west. Of course when one has been already in practice of surgery for some time he can gain a great deal by closely following surgeons here and especially abroad, where they put so much stress on surgical pathology, but we have in America some of the best schools for surgeons following these lines. There is in the small town of Rochester, Minnesota, one of the best schools of surgery. Two, or in fact more than two surgeons are doing ideal surgical work, they not only operate but they diagnose pathologic conditions as well as any European professor of pathology and by watching their work one can easily learn how to prepare himself for surgery.

A CASE OF CHRONIC TROPICAL ABSCESS OF THE LIVER.

By Charles H. Phifer, M. D.
Adjunct Professor of Medicine, University of Illinois; Surgeon to Lakeside Hospital.

Mr. Duane D.—Aged twenty-seven, Nationality Irish. Occupation private in U. S. Army. Family and alcoholic history—negative.

Previous History. Ordinary diseases of childhood—no sequelae, gonorrhea and malaria in 1900.

Dysentary in 1900 while in the Phillipines which confined him in the Military Hospital for a period of six months, at the end of which time he left the hospital apparently cured of dysentery. With the exception of an occasional attack of dysenteric diarrhea he remained in good health until December 1906.

At this time he had a severe chill, followed by sharp cutting pain in right hypochondriac region, which was later referred over back and scapular area. This was followed by a history of repeated chills and fever, accompanied by profuse sweats, loss of appetite, severe emaciation, return of dysentary, diarrhea, disturbance of stomach, and vomiting.

Slow but progressive enlargement in right hypochondriac region was noticeable. And with this the pains became more excruciating. This history persisted until the following June, when a diagnosis of cholelithiasis with empyema of the gall bladder was made by his attending physician. The abdomen was opened by a transverse incision. gall bladder found in a normal condition, the pathology of the liver regarded as a case for medical treatment. Abdominal wound closed but so great was the pressure from the excessive size of the liver against the wound that it reopened in a few days and closed later by granulation. I saw the case about three weeks after it had been operated upon, when an examination revealed the following clinical findings.

Examination. Height five feet, eight inches; weight 70 pounds.

Skin—Grayish yellow, sclera slightly tinged.

Sensorium varied—Clear at times, other times muttering delerium.

Diarrhea—Four to ten stools per day.

Temperature—Frequently subnormal, never over 100°

Pulse—Rapid and small.

Cough—Short, aggravating, mucoid expectoration.

Position—Lying on back, right thigh slightly flexed.

Pain—Greatest in right nipple line, intensified on pressure or respiration and change of position.

Edema—Of both feet, right thigh and scrotum, with pronounced ascites.

Veins—Superficial abdominal and thoracic widely dilated.

Right Chest—Greatly enlarged, intercostal spaces obliterated.

Liver—Bulging of liver, pronounced below right costal arch, extending almost to iliac crest.

Palpation—Liver smooth but very tender.

Percussion—Showed dulness as high as second rib; percussion over apex of lung slightly tympanitic.

Heart—Displaced to left.

Laboratory Examination. Urine—Sp. gr. 1022; color dark, flocculent sediment, alkaline; urea .004. Sugar—Bile and Indican negative; granular casts; calcium oxalate crystals present.

Sputum—Negative.

Blood—White cells 10,700 per c. m. Red cells 3,920,000 per c. m,

Stools—Amaeba Coli.

Diagnosis:—

1. Life in Phillipines.
2. History of dysentery.
3. Pain in region of liver and shoulder.
4. Enlargement of liver in upward direction.
5. Circumscribed bulging.
6. With the associated clinical history.

Treatment:—

Under scopolamin and morphine anasthesia incision was made in right nipple line, just below costal arch, and at right angle to old incision. A trocar was inserted into right lobe, removing eight litres of chocolate-colored fluid, containing some thick, creamy pus; enlarged the opening and inserted a drainage tube.

Edema and ascites disappeared; vomiting ceased; patient made good progress for about three weeks, when he had a hemorrhage from the abscess cavity; this was controlled, and ten days later had a second severe hemorrhage, when he became almost exsanguinated and expired from the effects of same.

Post Mortem:—

By request limited to section of thorax and abdomen,

Liver—Greatly enlarged, the right lobe showing a large single loculated abscess on convex surface, near its diaphragmatic attachment, having a well defined fibrous wall.

Spleen—Slightly enlarged.

Right Lung—Completely collapsed with unilateral hydrothorax.

Left Lung—Normal.

Mediastrinum—Bulged to left.

Heart—Enlarged and displaced to left.

A CASE OF CHOREA IN A CHILD UNDER THREE.

By Frances M. Allen, M. D.
Instructer in Pediatrics, University of Illinois.

The following case seems of unusal interest to me because of the delicate age of the patient, the severity of the attack with relatively satisfactory recovery, the development of the endocarditis under my eyes, while the child was kept as nearly at rest as possible, and of the indefinite rheumatic etiology.

Baby H., aged two years and eleven months, the fifth of six unusually fine children, was taken ill Feb. 21, 1903.

The family history reveals nothing with special bearing on the etiology of this illness. Father and mother are both in good health. Four of the six children had had infantile convulsions, not connected with acute illness. The oldest child has suffered from an attack of chorea immediately following scarlet fever.

The little patient had given no previous manifestation of nervous instability. During her first year she had suffered from malnutrition in spite of being breast fed. At the end of the first year, her mother went to Hot Springs, seeking relief from a moderately severe attack of rheumatism. On the advice of a physician there, the baby was given a regular course of baths. Improvement was marked from the first and after coming home she became fat and rosy and remained so until her present illness. In February of this year, physical examination showed an unusually well developed child; no heart lesion, no evidence of rickets, speech was plain, she could walk long distances and was in every way a healthy, happy, romping child.

She was brought to me on the morning of February 21, the mother having become alarmed because of jerking movements of the legs which had made it almost impossible to dress the child. The mother said there had been increased irritibality for several days, but until that morning it had not been possible to distinguish the choreic movements from the ordinary restlessness of childhood.

Examination showed no evidence of paralysis; reflexes all normal; no points of tenderness. While at rest, there were occasional movements of the legs and thighs, which evidently were involuntary and greatly annoyed the child. When placed on her feet the movements became more frequent and more distinctly choreic, so that danger of falling was constant. Walking was practically impossible

A diagnosis of chorea was made and the child put as nearly at rest as possible. The symptoms increased in severity for two days. On the second day the tongue was evidently involved, and later speech became very indistinct and remained so for two weeks. There were slight choreic movements of both arms the first day, which increased somewhat for two days and continued through the course of the disease, but were at no time so severe as those of the lower limbs. The face muscles were only slightly involved.

After the third day there was little change for three weeks, and during this time the little one's condition was indeed pitiable. There was almost constant motion, great nervous irritibility and rapid loss of flesh and strength. On the twelfth day a cystolic cardiac murmur was detected at the apex. At first it was soft but soon became very loud, distinctly flowing in character and transmitted to the axilla.

After the third week improvement was rapid. All signs of abnormal irritation stopped, and she rapidly regained flesh and strength. At the end of two months she was apparently well. Physical examination still shows a distinct cardiac murmur.

The treatment was that usually given in acute chorea. As far as possible rest was insisted on. With this in view, the little one was kept much of the time in a baby carriage out of doors. Warm baths were given frequently, and prolonged, gentle rubbing with warm oil twice a day. Arsenic was given in as large doses as could be tolorated, but its use had to be frequently interrupted. As soon as there was a distinct improvement in the choreic movements, iron and cod liver oil were substituted. Bromides were used only when imperatively called for. As soon as acute symptoms subsided, the child was sent to a warm, dry climate.

This is the first case of acute chorea in a child under five that I have seen. A hurried review of the literature on the subject shows that a number of cases under three have been reported. When one considers how close at all times is the resemblance between the involuntary movements of chorea and ordinary voluntary movements, and that the restless, incoordinate movements of the healthy young child, would always indicate nervous instability in an older child, one can realize that the diagnosis would always be difficult and often uncertain, excepting in a severe and rather typical case.

The committee on Chorea, one of the committees of the British Collective Investigation Association in 1888, were able to report two distinct cases under three years of age and one additional case between three and four years. American physicians have reported many cases in very young patients. Sacks, in Keating's System of Diseases of Children, after quoting reports of various authors as to the age at which chorea occurs, says that some cases occur much earlier than these tables would indicate, he himself having seen one case at one year and several between two and three years; and Osler(1895) reports 33 cases under five years out of a total of 522 cases,

A CASE OF SPASMODIC ASTHMA CAUSED BY REFLEX IRRITATION.

By A. R. Johnston, M. D.

The case reported below is of interest because of the apparent causal relation that a retro-displacement of the uterus bore to the asthmatic attacks.

On July 23rd, 1892, I was called to see Mrs. P., a housewife of French-Canadian birth, aged 26. The patient had had a severe uterine hemorrhage and pains caused by a miscarriage at three months. I found the whole product of conception in the vagina and removed it. Hemorrhage had stopped and there was but little more to be done.

The patient asked me at the time if I could tell what had caused the miscarriage and expressed disappointment at the loss, saying that she desired to have a family. I made a digital examination and found the uterus to be in a position of extreme retroversion so that the fundus was deep in the sacral concavity and it resisted some effort to replace it.

I explained that the displacement was the probable reason for the miscarriage. At two o'clock on the following morning I was summoned to this patient's house and found her suffering from a severe asthmatic seizure. I relieved her as best I could and called again latter in the day. She then told me that she had suffered from asthma since she was twelve years old and that the attacks had been severe almost from the first. Incidently it appeared that the menstrual function was established some months after the first asthmatic attack occurred and that the attacks of asthma usually came on at or near the menstrual periods. In the course of a few years the attacks of asthma became more frequent and more severe and the patient abandoned any hope of permanent cure.

The most significant statement in the history was that for the three months during which the patient was pregnant she was entirely free from asthma.

I suggested that perhaps if the displacement was corrected the asthma would be cured but the patient was afraid to hope for such a deliverance. She was willing, however, to submit to treatment in the hope of being able to carry a child to full term.

Two weeks later the patient came to my office to commence treatments which consisted of efforts to replace the uterus with the patient in the knee-chest position, tampons and instruction of the patient to occupy the knee-chest position for a time two or three times a day.

The patient had one slight asthmatic seizure just before the next menstrual period. At the end of eight weeks the patient discontinued the local treatments because she feared that she was again pregnant. She continued to occupy the knee-chest position as before. The supposition of pregnancy proved to be true and nothing more was done except that the knee-chest position was continued until the fourth month and all unnecessary exertion was avoided.

This pregnancy continued until full term without a recurrence of asthma. The patient has had four other children at term and one miscarriage but has had no return of asthma except on two occasions when she has visited her home on the Atlantic coast where she always experiences some difficulty in breathing.

STREET ACCIDENTS.

To the Editor:—

I was exceedingly interested by the article in September Plexus under above entitled heading, anent the question of emergency services by physicians and the reasons contributing to the "I-do-not-want-to-get-mixed-up-with-it-feeling," with which members of the medical profession nowadays view their being possibly called upon to render services in cases of persons hurt by street-cars or other such modes of injuries.

Although the reasons given are only to a slight extent, in my opinion, responsible for this condition, nevertheless the discussion of the problem at all is like the straw which shows in what direction the wind is blowing, and is an excellent augury for the grappling with this and other questions with which the average common or garden variety of physician is now, has been for some time past, and unfortunately probably will be in the future, so very sorely beset. The disregard of, or shock to the physician's finer feelings or sensibilities, brought about by the aggravated absence of consideration shown by the average crowd, as represented in the ordinary conglomeration of morbidly inclined degenerates, which push, pull, shove and elbow their passage where an accident has occurred, may be the chief motive determining practitioners with a bulging pocket-book and an exaggerated idea of their own importance, to avoid such services as far as they can possibly manage it, but to the ordinary physician who is wondering where his next month's rent, telephone charges, board and other necessary wherewithals are coming from, the reasons appealing to him why he should not rush, pellmell, hatless and breathless into the street when called upon in such instances are of a more sombre, considerably more justifiable, and incidentally, far more honest nature, and I give it here in the nakedness of cold type over my own signature, although I look for a howl of outrage and virtuous (?) indignation from that class of physicians who have already graduated from the ranks of the "lower five hundred" to that of the "upper ten," and who now loll indolently and with such a nonchalant air amongst the luxuries of their surroundings and unctuous formulate epigrams for the guidance of their more lowly developed imitators in the profession, and try to brush from their minds any memory of the time when they could not afford to be so particular about their finely elaborated sensibilities, nor about their source or income such as it was, so as to keep the wolf from the door.

The writer in the *Journal of American Medical Association* very justly deplores this tendency of physicians to side-step those cases but does not suggest any remedy, probably no remedy can or will be forthcoming until the class of physicians most concerned will get together, drop their petty jealousies, their "cutthroat knocking" of their fellow practitioners, and cease to so assiduously thrive on the patients that they succeed in stealing from their neighbors, all of which practices are rampant in Chicago, our principles of ethics to the contrary notwithstanding; so that the public is educated to believe we have little respect for ourselves or for each other, and treat us accordingly, or more so, while organization in the profession, each man standing shoulder to shoulder, instead of at daggers drawn, and insisting on our elementary rights, would in a short time effect such a change that the medical profession would no longer be the one thought easiest to work, and the members of it have sufficient confidence in themselves and enough dignity so that they would no longer be afraid to tell their own name, nor shake in their shoes at the bare thought of incurring the enmity of any dead beat, libertine or reprobate in the neighborhood, when he tries to collect his bill. The real cogent reason actuating the vast majority of physicians in their dislike to attending emergency cases is that they ordinarily are unable to collect any fee from the party injured or those responsible for it. He has come to learn this well and thoroughly from oft repeated experiences, and an account book showing practically each and every case to be a dead beat of the first order, as usually in the case of injuries. at least to men, it is found that they are cheap sports, out for what they consider a good time, the acme of which to their constricted imagination is to get drunk, and being drunk are not in a condition to take care of themselves, with a resultant accident. This class of people seem to consider the money spent for whisky is all right, and the value received satisfies them, but the idea of paying a doctor's legitimate fee, to save them from the results of this "value received," suggests to them a most unreasonable demand, and they have tried and will continue to try all sorts of schemes to beat the doctor out of his legitimate fee in such cases, although while he is receiving the professional services, he affects great gratitude; tells the doctor he will work his head off as soon as he gets well to pay him every cent, even if the conveying company does not; pretends to put the doctor at the same time on a pedestal as a worthy member of a profession out primarily for the benefit of humanity and therefore not to be insulted by going to the extreme of seeing that he gets any money on account as he goes along, although the services may continue to be rendered over a period of six months, and during which time the injured man will borrow money to pay his rent or the landlord will throw him out, and borrow other money for the grocer, baker and dry goods man, and finally if he dies as result of the injury, the union or lodge he belongs to pays all his funeral expenses, but do they ever think of paying the doctor a cent who meekly signs the death certificate and is glad he is living? Oh, dear, no; he is not commercial. Perish the unworthy thought. Later, however, when he tries to collect his bill from the patient's family, they suddenly switch from the pretence of looking upon him as a member of a noble and humane profession, which idea the doctor himself has fostered, and now they put him altogether on a commercial basis, similar to any other creditor and fight as hard against paying his bill as they would against the grocer's, plumber's or anyone else's, and in addition, perhaps, tell all in his community that it was his treatment that killed the patient.

The ordinary graduate just starting out from college chock-full of ethics and high ideas about the nobility of his calling, the dignity of his profession, the sacredness of human life, his duties to his fellowmen and sense of gratitude to his professors, only has to wait a few months to have all those ideals shattered to pieces, after a few of those accident cases, where perhaps he is gotten out of bed, attends to the injured party in his office, gets his new upholstered couch covered with mud and his clothes smeared with blood, and will also in his zeal for the welfare of his patient and in accordance with his ideas that he should always be at the beck and call of suffering humanity, ride in the ambulance to the hospital, attend the patient there, and for all this perhaps not get a solitary cent, or mayhap he has a severe case of typhoid fever or pneumonia on hands, the patient seems to get worse, the relatives are alarmed and calls in another physician, who happens to be one of his professors who lectured to him in college and who says the young doctors's treatment is all wrong, congratulates the family that they called him (the professor) just in time to save the patient's life, and the upshot is that he succeeds in stealing the patient away from his former pupil that he used to hurl ethics at when in college. After some doses of the kind the young doctor's ideas about emergency calls, suffering humanity, ethics, etc., will have undergone very considerable changes for the worse.

The fashionable doctor, living on the select residential street or boulevard, who practically never gets called to an accident case of the ordinary dead-beat type, can afford to indulge in high sounding platitudes about the unfortunate tendency of the smaller fry, not to wait patiently in their offices for someone to come rushing in telling them their services are imperatively required in the next block where a drunken man has fallen off a street car, or when the conductor on the car on which the doctor is travelling seeing the hignsign of an easy mark, to wit, a doctor's medicine grip, who asks him sweetly if he will not attend to some injured passenger, for which services, if the physician is confiding enough to send it to the street-car company, at least in Chicago, gets paid by them as high as two dollars for the report of the case which is of great benefit to them but loftily refuse to consider paying a cent for professional services rendered. Undoubtedly the prosperous doctor is "tickled to death" that his fellow practitioner on the street with a carline and his shingle out over the corner drug store should take charge of all this class of work, while he attends to the furcoated division of humanity. Sounds very commercial, you say, but it is truth, and the sooner we have all this hypocrisy and cant about noble callings, guardians of public health, workers for the benefit of suffering humanity, lives of sacrifice, a life of toil without expected recompense, and other twaddle of this ilk which the "upper ten" of the profession loves to indulge in, to draw towards themselves praise for work and charity they do not do, and for sentiment they do not really feel, and so place themselves on a pedestal in the glare of the spotlight, and be pointed out as philanthropists for the benefit of their fellow men. The sooner, I say, this is accomplished and our calling be run on a common sense basis, the better it will be for the ordinary, struggling doctor, who is now being exploited by the gentlemen of the $20,000 class, who talks ethics but steals patients and decries contract practice, etc., because the latter is chiefly controlled by the under dog, and were it not contracted for, the $20,000 man could get some of it himself. The hereditary instinct of "grab," that one evolutionary passion most firmly implanted in us and passed down to us from our primitive ancestry, is subtly hidden beneath all this "poppycock" which is used to cover up the real purpose of the "vested interest" of the medical profession, so that the same old conditions will obtain as in the past and that such "vested interest" may feed, parasitic like, off the exploited and so contribute to the gratification of their own "grab" instincts. If the leaders in our profession are so pained, greived and shocked, that the physician should avoid these emergency cases, because, (as they effect to think), he does not have along with him, instruments, dressings, etc., or that his esthetic sense may not be properly impressed by a sense of what he conceives his dignity, etc. How do those selfsame physicians and surgeons (we must not omit to include the surgeons at any cost) refuse to answer night calls no matter how urgent? How do they figure out that the common physician, if you please, at 11 A. M. say, in the case of an emergency street-car injury, should be under a different humanitarian law to the fashionable physician reposing peacefully amongst his downy pillows, at midnight, in his pretentious residence on the boulevard, when the infant in the poverty-stricken home on the less pretentious street nearby has severe convulsions, while the distracted mother bends over it and does all she knows of to alliviate its sufferings , and while the equally alarmed father is vainly importuning the nearby fashionable humanity-standardpreaching doctors to creep out from beneath the substantial folds of the covering over the ample proportions of their expansive and luxurious bedsteads! Why?

The answer is *it does not pay them to do so*, firstly because they already have a very lucrative practice and are no longer dependent on answering night calls, secondly they require proper rest and sleep to handle what they have gotten to the best advantage and prevent the other fellow from stealing it, thirdly it would most decidedly be "infra dig" for their highclass patients or neighbors to see them get out at this time of night, like common doctors. Some of them might desert him for a more aristocratic physician. Horrible thought! Fourthly, there would be no fee in such a case, or if there were any, its dimensions would not conform, probably, to standard size as usually collected.

Commercialism again, isn't it? Verily yes, pure and simple, and that this commercial type has the effrontery to dictate to the less fortunate type to proceed as they have been doing, so that the "vested interests" can continue their operations behind their intrenchments shows that the rank and file are being exploited, thoroughly and efficiently, for the benefit of the gentlemen posing as humanitarians.

FRANK DEACON, M. D.

"DISTINCTLY I REMEMBER".

It was a wild, mad kind of a night; the wind moaned as it rounded the corners of buildings; the rain came in drizzling gusts from everywhere. Jackson's dog howled to get in. An owl car went jingling down the track. All the air was full of dismal noise. The street was empty as far as one could see. The windows rattled and there were unsteady shadows in the room. A shade flapped against a window uneasily and now and then the rug was lifted in little waves by the wind from under the door.

The doctor closed his book with a shudder and started off for bed.

An officer in plain clothes knocked at the door and came in, the water dripping from his rubber coat. He said he had a man in a lodging house four blocks away, who was wanted, but the keeper said he was too sick to go. Would the doctor come and see if he could be taken to the station?

The lodging place was in the basement of an old brick store building, with the entrance from the sidewalk. Inside it was one large basement room with three-quarter beds forming a row on each side.

On the left, forward, a plain wooden desk was built, behind which the keeper sat reading under a small oil lamp. There was a hanging lamp in the middle of the room but it was not lighted. On a bed at the far end of the room stood a lighted lantern and four men used the bed for a card table. On the edge of a bed in front, his face in his hands, sat a man enjoying a reverie. On another bed an Irishman sat smoking a short pipe.

Nearly every bed in the room was occupied by one or two sleepers, men who had removed boots, coats and hats and thrown themselves down to rest. The composite odor in the room was too heavy to analize.

The plain clothes man picked up a lantern from somewhere and started down the room. Near the end he turned in between two beds and pointed to his man, There were two men on the bed. The farthest away lay on his back snoring heavily. The other lay on his side, his face from them. The doctor rolled him on his back asking the officer to throw the light on his face for the rigor in the muscles of the arm told him the man was dead.

A. R. J.

THE PLEXUS.

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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Send contributions to A. R. Johnstone, M. D., Editor, 4147 Lake Ave., Chicago.

THE OUT OF TOWN ALUMNUS AND THE PLEXUS.

It is a source of regret that the alumni who live out of Chicago contribute little or nothing to the Columns of the Plexus. It would add very greatly to the interest and the value of the journal if the alumni would write for it on subjects of general medical interest or of special interest.

Many things occur in the lives of busy doctors in the cities, towns and country that are interesting and many things that would interest us all if they were presented.

Correspondence on subjects of general interest to physicians make interesting and often profitable reading and would add greatly to the value of the journal to the alumni generally.

The Editor would welcome communications of this kind from alumni in other locations than Chicago, and urges that members of the Alumni Association show some active interest in the PLEXUS in this way. Such an interest taken by a few would quickly awaken interest in others and make the journal much more interesting and valuable to all.

TO THE STUDENTS.

The college year has opened under every auspicious circumstances and the outlook for the year is bright.

The members of the different classes have gathered and are showing a spirit of energy and earnestness that promises well for the work of this present year and for the future.

In medicine as in every other calling the persistent daily grind that insists on fininsing the work in hand and avoids accumulations of postponed tasks is the kind of work that makes for success and leaves the least evidence of strain.

The student who steadily reads to learn and not he who merely crams to pass examinations is the one who gets the most out of his work and who in the end makes the task easiest for himself.

The student in College life is building for a long, hard future and the earlier he learns to economize time the less he will have to regret in the future. Economizing time is one of the difficult things to learn and yet it is of inestimable value to him who learns it.

The person who plans his work with a view to saving time also plans to save unnecessary repetition and to save labor and annoyance for himself. He learns to work with even concentration while he does work and to rest with an easy conscience while he is resting. The strain is minimized while the maximum result is attained. This is of great practical importance to the Student and the habit of systematic persistant work formed while in College will follow and speed him on his way in the harder field of practice in after years:

THE QUINE LIBRARY.

A record of additions to the Quine Library with notes of improvements in space and furnishings appears in this number of the PLEXUS.

The library is one of the best features of the college, and ought to be supported and helped in every way possible by the college, the faculty and the students.

To the student it is a boon and should be used by him to the greatest advantage and its privileges never be abused.

The interest taken in the library and reading room, by the senior students especially, is a source of great satisfaction to the librarian and the faculty, and every effort will be made to foster and stimulate that interest and to still farther improve the library in convenience and the extent of its literature.

LIBRARY NOTES.

As the students return to their college work they find many improvements in the Quine Library. The first change that one notices on opening the door is that the walls have been redecorated and the place thoroughly cleaned. Another study table has been added to the equipment of the reading room, the pathological charts having been moved to the museum to make the necessary space. This increase in the seating capacity makes it possible for 54 persons to find accomodation in the reading room at one time. As in past years the tables in the stack room are reserved for the use of those doing Quizz class work, and the small reading room is devoted to the faculty members who make use of the Quine Library for reference or research work.

A beautiful delicatissimo fern adds a touch of beauty to the library and to the seniors and faculty members whose generous donations made this purchase possible, we wish to express the sincere thanks of all who use the general reading room.

The following list of books have been added to the library.

Grayson—Diseases of the Nose, Throat and Ear.
Mann—Chemistry of the Proteids.
Jackson—Diseases of the Eye.
Hawk—Practical Physiological Chemistry.
Bergey—Principles of Hygiene.
Diefendorf—Clicical Psychiatry.
Petersen—The Practice of Obstetrics.
Howell—Text book of Physiology.
Kassabian—Roentgen Rays and Electro Therapeutics.
Edwards—Treatise on the Principles and Practice of Medicine.
French—Text-book of the Practice of Medicine.
Carr—Practice of Pediatrics.
Santee—Anatomy of the Brain and Spinal Cord.
Pusey—Dermatology.
Piersol—Anatomy.
Park—Surgery.
Morris—Anatomy.

With the exception of Dr. Pusey's and Dr. Santee's works the books were purchased for the Quine Library from the regular book fund.

To Dr. Pusey and Dr. Santee sincere thanks are hereby tendered for their generous donations to the Quine Library. We also wish to thank Dr. Harsha and Dr. Stoll for gifts of journals and reprints. A valuable gift of 8 volumes has been received from the Treadwell Library of the Massachusetts General Hospital of Boston.

To the members of the class of '07 we wish to state that the bookplate which the class voted to present to the Quine Library will soon be completed. The design is being made by Mr. Goudy, of New York, whose reputation for this kind of work is well known.

ALUMNI NOTES.

The marriage of Dr. A. H. Movius, Class '06, to Miss Helen Shepherd, of Chicago, took place on October 3rd. The wedding was a well attended Church function. Dr. and

Mrs. Movius are visiting in Colorado. They will proceed to Flandreau, South Dakota, where the doctor enjoys a very lucrative practice.

Dr. Charles Cheyne, Class '05, is reported to be seriously ill in Milwaukee, Wis.

Dr. Luesing, Class '05, was heard from last week. He is practicing in Seattle Wash., and is doing well.

Dr. C. C. Howard, who was reported to have gone to Montana, has instead located in Edgwater, Ills.

SENIOR NOTES.

Classmates and Fellow Students:—

At this time, the opening of another college year, as one by one we gather mutually to strive onward and upward in our chosen work and study, we, as editors of the class of '08 bid you all a most hearty welcome.

With new energy and more zeal gained through rest or change of duty during the vacation season, together we await our new work, anticipating coming opportunities for betterment and prepare to grapple anew with work that leads to success.

Looking back, each can see wasted moments, neglected opportunities, now gone forever; but, forgetting the dead past we press forward with new endeavor, striving day by day to make the best of life, and repeating the prayer,

"Make my mortal dreams come true
With the work I fain would do;
Clothe with life the weak intent,
Let me be the thing I meant".

Together we have fought and survived class battles, anticipated, yes, and entered the fray occasioned by strong competition at each class election, and a feeling of fellowship which awaits our strengthening, now exists between us.

In our welcome, as well as in our striving toward future helpfulness and fellowship, we ask the incoming Freshman Class to feel and accept their part. To its members we herewith offer in behalf of the members of the Class of '08 our help and advice along lines in which they may find difficulty. May they at all times feel free to ask and receive much for the asking. We too, have been Freshman and are able fully to realize the difficulties that confront them.

As this year progresses, let the fellowship we have so much enjoyed and benefited from receive our every support, and let us so share in all things that the closing days may find us one in every phase of class life.

We solicit and will sincerely appreciate the kind co-operation of each classmate in the collection of class items for the PLEXUS during our term of service as editors.

NOWACK and ESSICK, Editors.

While attending the summer course, Charles J. Skevor was kept busy answering messages that came in great number from Ella, Steina, Mathilda & Co., Heart Brokers, Milwaukee, Wis.

Classmates warned him of the danger of acute cardiac dilitation, but without avail.

Sir Richard Dowd, recently returned from a prolonged stay in South Haven, is now ready to give an illustrated lecture on "Moonlight Views of Chicago Between the West Side and Randolph Street Warf as Seen by One Afoot." Sir Dowd will also dwell at length on the "Consistency of Cobble Stones and the various Minerals contained therein."

For further particulars see the man with the steam launch.

Larkin in his Gynecological research work is heavy on the term "Uteritis".

Rosenweig insists that fibroids of the uterus are most common in women.

Thuber puts a trust (truss) on incarcerated hernias. Dr. Goldstein advises Thuber to call a doctor.

Watch the Bulletin Board and get a copy:

Dr. Niemeyer will offer to Seniors only, reprint on

Post-Mortem Hemorrhage, A bad theme for an Obstetrition, Niemeyer.

Armstrong *would* decapitate the head.

Griffin in his discourse on Caesarean Section, advises that the incision be made six inches long if there is but one child to deliver, twelve if twins. Big strides, Griffin.

In the hours of Pediatrics:—

Dr. Earle tells how he once went to see a case with a Specialist and the undertaker followed in two days.

Dr. Hatfield makes comparisons—Cookoo; the symbol of the Chicago society woman; lays its young into another bird's nest for care.

Greer is questioned; impatient Nussle answers:—

Dr. Hatfield—Mr. Greer, What is Diarrhea? Greer, silent.

Nussle—You ought to know, we had that last year.

No place for hot air in P. and S. Clinics.

Dr. Davison asks Wedel the pathology of Lipomas, Wedel gives him a big stall, only to receive Dr. Davison's answer, "You never studied pathology in P. and S."

SOPHOMORE NOTES.

The students of the Sophomore class have again united their forces for the coming year's work. The mental capacity and adaptability to incessant labor evidenced during their Freshman career promises greater things for the future.

Upon completion of the Freshman course, the present Sophomore was elated over the idea and exclaimed in the words of the great conqueror, "*Veni, Vidi, Vici.*" But alas, after having attended several lectures, he realizes that the dreams of leisure and repose are the colossal works of his verdant imagination.

The first class meeting, held on Tuesday, Oct. 8th, proved the worth of Howard R. Sword, as a president and manager of affairs.

The members of the class hereby wish to express their pleasure in making the acquaintences of the individuals, *who saw fit* to join their ranks. May they prosper amongst us.

Professor.—"Mention another pharmaceutical preparation you have studied."

Bradly.—After a moments reflexion. "A honey" (chorus.) But Will's memory failed him when he endeavored to name a particular one. No wonder.

Question.—Do veterinarians use the faith cure?

Answer.—B. J. Voigt does.

Be it hereby known that after a most tedious man-hunt on the 7th and 8th of October, the grievance committee reported finding a certain Dan Meany on aforesaid afternoons, attending a base ball game and accused him of an undue abuse of his vocal chords—But Dan forgot to substitute a pair of vocal chords at the Physiology roll call.

On Oct. 9th the college campus was the scene of a not very edifying but nevertheless a very social gathering of Freshmen and Sophomores. But sociability soon gave way to hostility. The revenge which the Sophomores nourished for an entire year broke forth in all its fury. However we tip our hats in recogintion of the clean and hard fight given to us.

Messrs Ziegler, Hubenranch, Donahue, Sword, Wilson, Kazinarek, Lentino and Epstein have successfully completed their Sophomore course in dissiction. Among the many varieties of anomalies found, the most noteworthy was that of a right subclavian artery arising from the left side of the Aorta. The specimen is preserved and will be on exhibition in the College Museum.

SCHOOL OF DENTISTRY

DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., OCTOBER 20th, 1907.

DENTAL PATHOLOGY.

By Geo. W. Cook, B. S., D. D. S., Chicago.

Dean of Dental Department, University of Illinois; Professor of Bacteriology and Pathology, University of Illinois.

The discussion of a subject on disturbed nutritive function of the body, or any condition that may deviate from the normal, is a question of the highest importance to the dental profession. The question is frequently asked: "What makes these pits or peculiar spots upon the surface of the enamel of my teeth?" The dentist usually answers this by saying: "This possibly happened in your childhood," without having the slightest knowledge himself of the vast importance wherein the fundamental cause may lie. Up to the present time no one really has been sufficiently qualified to state with a certain degree of definiteness as to the true cause why certain changes take place as regards the color or appearance of the teeth, nails, and various other structures of Epithelial origin.

Today we hear many medical men and dentists recommending their patients to feed their babies on substances that contain an abundance of phosphorus, calcium, magnesium and various other compounds of an inorganic nature.

From a physiological standpoint this is the most foolish doctrine that usually leaves the patient or mother to wonder about the rest of her life and traditionally hand it on from generation to generation. Men who make such assertions, in the truest sense of the word, are void of the physiological knowledge that ought to be essential to the care of hogs. There might occur under certain circumstances some condition in which such treatment or diet might be of some value, but one who recommends it promiscuously is, as was stated before, incompetent to give advice on any particular subject.

Malnutrition may be produced through the abnormal quality of foodstuff, as well as some change of the functional activity of the cells that are to perform the function known as metabolical processes. When the functional activity of the cell has been changed in any tissue of the body, and if this change from the normal functional activity remains for only perhaps a few moments, we are then confronted with the difficult problem of determining to what extent and how long this process may remain abnormal. Virchow described this process of tissue changes. If the condition continued for any length of time deviating from a normal process and yet did not go no to a hurried death, he called this process necrobiosis. In explaining in his original text upon this subject he says: "This is a condition of a comprizing vitality depending upon malnutrition." Since this term has never been so very universally adopted the term degeneration, meaning a retrogressive change of the cells, is now commonly applied.

The form of degeneration that is discussed most is infiltration, which means some new substance has been added to the cell. The difference between infiltration or metamorphosis of the cell is not at the present time very closely made out. This confusion perhaps rises out of the fact that the cytoplasmia of the cell is but little changed. The most common form of cell degeneration is absorption and retention of a harmless product into the cell. This is usually fatty, calcarious, glycogenic, and certain pigment elements that are carried to the cell, and because of its lack of destructive power and also because the cell is unable to throw it off, it remains there not altogether as a foreign product but as a cell substance that has a certain activity which enters into the process of tissue changes. It sometimes results that owing to chemical changes that take place during the metabolical process, these agents may convert some of the normal cell substance into pathological changes. When such a change has taken place in one cell, another and another cell gradually takes on this function until the tissue in that neighborhood becomes what is known as degenerated tissue.

So in speaking of degeneration of tissue we mean by that term that certain functional activity of the tissue has deviated from the normal; yet in many respects it is not recognized except under the microscope, and even there it is not always an easy matter to interpret the phenomena that has taken place in the function of that tissue. When we have fatty infiltration we mean that the tissue cell takes into its cellular substance and retains fat. This as we all know, up to a certain degree is a physiological phenomenon and becomes pathological when it occurs in unusual excess and degree in the tissue. Under normal conditions, the deposition of fats usually occur only in the subcutaneous cellular tissue. The increase of fat, as we have just said, occurs under normal circumstances only in certain tissue. It may occur, however, under abnormal condition in certain organs and in special local areas of the body.

Fatty infiltration frequently occurs in the liver in tuberculosis, and in various other localities or organs of the body that have to perform certain eliminary processes. Local fat accumulation is shown best in a little tumor known as lipoma. Probably the most common cause of fatty filtration is inheritance. It may also depend, however, on excessive nutrition. This last named condition is best illustrated in that most well-fed persons are stouter than those who are poorly fed.

We find in some cases of anemia that we have fatty accumulations in the subcutaneous tissue. The question is frequently asked, How can an individual be anemic with such an accumulation of fat? This is due, in the majority of cases, to insufficient oxygeneration of the blood, diminishing the fats in the circulating blood, with the result that the fats become deposited in certain tissue cells. Under physiological conditions the fat is usually deposited beneath the skin and in the areolar connective tissue, and there it cannot escape the infiltrative processes of the tissue.

There is another form of infiltration of tissue that seems like a peculiar type of cellular change. This degenerative change is known as glycogenic. As is well known to pathologists, this substance becomes deposited in the epithelial cells of the liver and kidneys, occasionally in the muscles and in embryonal tissue, and if there it is formed in small quantities it is not considered pathological. In certain diseased states, however, it becomes abnormally deposited in some cells, which results in a rapid dissolution or loss of function of the cell. If such a condition takes place the physiological function of the cell is soon lost and the dissolution may take place in such a way as to bring about the formation of abnormal structure. The sourse of glycogen is not a well understood physiological phenomenon. However, it is believed by those who have given the subject considerable thought that it is a carpohydrate, but that it may come from the carpohydrates and proteids. It is a substance that is easily converted into dextrose. It is thought by some that in this form it is stored in the tissues for some future use. In pathological conditions it appears in small quantities in the blood and pus, and in diabetes it is found in the cells of the liver in large amounts. The etiology of pathogenic glycogenic infiltration is usually dependent upon the individual's inability, as a physiological process, to properly utilize and regulate the changes that take place in the carpohydrates of the body.

This process of tissue degeneration with that of some other process of infiltration will in the future be one of the most important problems to solve in the oral mucous membrane for the preservation of tooth substance in its normal state in the oral cavity. I hope to publish in the near future some interesting experiments and useful findings of tnese pathological tissue changes in the oral cavity.

There is a form of degeneration of tissue which is an infiltration of a serous substance in the tissue known as odema of the cells, sometimes spoken of as dropsy or called hydroptic degeneration. It may sometimes follow inflammation or hyperaemia or in some forms of tumor whereby the local disturbance of the circulation takes place. The naked eye will not reveal any cellular disturbances; it is recognized only when the cells are viewed by the microscope, which shows that they are large, soft and moist; sometimes the cell is many times larger than the normal tissue cell. This is a condition that can be observed in the mucous follicles of the gum tissue, and especially along the line where the mucous epithelial that is brushed during the process of cleaning the teeth, and that mucous portion that the brush never comes in contact with. However, in a few instances I have seen it on the lips and buccal mucous membrane. In one case that I wanted to make a microscopical examination of, I clipped out a small piece of mucous membrane with a fine pair of curved scissors, and on examination the entire microscopic field was studied throughout with these serous infiltrated cells. On a close examination and observation of the case I discovered that a large portion of the epithelium was filled with serum instead of mucous. There were many interesting points about this condition that made it worthy of extended study, and I therefore gave this pathological condition some consideration in the particular cafe just quoted. At some future time I hope to give a more extended account of serous degeneration of the mucous membrane of the oral cavity.

Calcarious infiltration is one of the phenomena of all the forms of tissue degeneration. It is peculiar in that the inorganic salts are deposited in the cells and tissues in such a way as to form a hard, bony substance in the tissue. It differs, however, in some particulars and that is that the lime salts instead of being deposited in the cell they are deposited between the cells, and in that way instead of interfering with cellular activity of the cells themselves the deposits are so arranged around the cell wall that they interfere with the osmetic pressure that is so essential to cellular activity. The term calcific degeneration covers a broader field than should belong to this pathological process. Urates that are deposited in the tissues in gout really do not belong to this subject and should be treated under a different head. The cause of calcific degeneration is supposed to be due to a deficiency of oxygen and an excess of canbon dioxide, which cause the carbonates and phosphates of magnesium and calcium to be precipitated. Improper oxygenation of the blood is presumably one of the important factors causing this process, and it will be found in the majority of cases that where there is a tendency for the local tissue to undergo calcific infiltration there is always to be found a tendency to arterial sclerosis, and after death the lime salts will be found sometimes in considerable quantity deposited in the valves of the heart.

It has been my privilege on two occasions to examine teeth that were apparently of as sound nature as teeth could be, and the individuals so far as their histories were concerned had never been troubled with any dental interference. The individuals died from arterial sclerosis; the teeth were examined, along with a post-mortem examination, and it was found that the pulps in the thirty-two teeth had all undergone calcific degeneration. Calcific infiltration or a tendency to such conditions in an individual have a fundamental bearing upon the dental organs, and it has been my observation of several years of close study that a person having the long bluish-white teeth have a predispositioa for the formation of lime salts in certain tissue structure. In a vast majority of these cases it will also be observed that the skin has rather a bluish-pink color, and which shows that the venous circulation is in some way interfered with. If occasion should demand the extraction of teeth in such individuals it would be well to observe whether or not the pulps of the teeth have undergone calcific degeneration. I think a close observation will reveal such a fact.

One of the strange tendencies of calcific degeneration, especially where it takes place in the walls of the blood vessels, is that it occurs in the large blood vessels first, and usually by the time it is to be found in the peripheral blood vessels the larger vessels have undergone considerable degenerative changes, and in a large majority of instances, or I might say by a larger majority of cases, the individual will have passed away before such denenerative changes take place in the peripheral cells.

Dr. J. L. Miller, in a long series of investigations on animals, found that by raising the blood pressure in animals by certain poisonous products, that the degeneration of the vessel walls took place in the larger vessels, and as the experimental observation went to show the small vessels were the last to become degenerated. In similar experiments carried on by myself I was able to raise the blood pressure by certain toxines and ptomain of bacteria and many other poisons of a stimilative nature, to find that the degeneration took place in the large blood vessels. But I was unable to determine any degenerative changes in the blood vessels in the mucous membrane of the mouth, the predominal membrane around the teeth, and the periosteal blood vessels of the jaw bone surrounding the necks of the teeth. These observations differ very materially from those of Talbot. I must confess my inability to obtain any of the tissue changes that Dr. Talbot seems to have found in his experiments. If time and space would permit I would like to go more fully into the detail of these experiments. But suffice it to say at this time that my observations lead me to believe that the degeneration of the walls of the blood vessels in their peripheral endings very seldom, if ever undergo any degenerative changes; except possibly a few instances in the kidneys and liver—in special diseases like that of the irregularity in the distribution of the inorganic elements in rickets, and osteomalacia. In such cases we find that the lime salts are interferred with in such a way as to bring about any irregularity of the deposition of these elements, which is the result of malnutrition in which all of the metabolism of the body is interferred with. It has long since been observed in bichloride of mercury poisoning that bismuth and aloin bring about lime absorption of the bones. The redistribution and elimination are conditions that were early observed by the Germans and called Kalkmetastas. In such poisonous canditions the lime salts are readily absorbed and eliminated through the organs of elimination. It is probably true that such poison or intoxication is the result of osteomalacia and osteopathyrosis.

The cases usually observed in which the lime salts deposit themselves in the cells instead of between the cells, or in other words, intercellular substance, are those in which the epithelial pearls of epithelioma appear in the nerve cells of the ganglionic structure. The intercellular deposits of the mineral salts are usually amorphous granules, while the deposits of the extro-cellular are more liable to be a crystalline deposit. The deposits of mineral salts in the nervous tissue (psammona) occur usually in the form of concentric sphere or laminated spicular cylinders, scattered throughout the matrix of the tumor. The lime salts found in all of these deposits are usually insoluble in water, ether, chloroform, alcohol and xylol. They are soluble in dilute acetic acid and in hydrochloric acid. In the calcific degeneration of the pulp in the deposits are more soluble in sulphuric acid than they are in either of the acids above mentioned. This is possibly due to the fact that there is usually much more moisture in the mineral deposits found in the connective and nerve tissue outside of the pulp chamber, than it is in the pulp chamber itself, consequently the sulphuric acid would become dissipated in the tissues where the circulation was more prominent than in the pulp tissue. Therefore the pulp tissue only contains a sufficient amount of moisture, especially in calcified pulp, to be attractive to the sulphuric acid. I think this will account for the readiness with which the calcific deposits in the pulp are much more soluble in sulphuric acid than they are in other tissues.

OFFICE AND ASSISTANT.

By Emma A. Weisgerber.

Being an assistant in an office for the past eight years and having read so many articles in dental journals of office management and assistants, I have been impressed with the fact that few dentists derive the benefit they should from an assistant and that I should like to relate some of her duties in the office.

In the first place, if she be a success, she must or should know the business thoroughly and have a deep interest in the affairs of the office. She should be loyal to her employer and in turn should be treated with the greatest kindness and respect and her work should never be allowed to become a burden to her. Her training is due to her employer and if she fulfils her position properly she will be very busy during working hours, but, as I have said before, too much must not be asked of her. I refer to the young lady assistant, a non-graduate in dentistry, who is fairly well educated, can write a good hand and who has the very highest respect for the profession.

Now, I will speak of some of the uses to which she may be put by good training. She will be useful at the chair during operations, in the laboratory, at the desk taking care of the books or at the typewriter with correspondence. She must know the importance of dental hygiene and sterilization.

I will now begin with her duties on a busy day in the office. The first thing in the morning she looks after the oiling of the engine, sees that all the soiled linen about the chair is replaced with clean, that the fountain-spittoon is in good condition, a clean glass with fresh water for patient is there and also one for fresh water for the bulb syringe. The patient on entering the office is met by the assistant and taken into the operating room, where the comforts of the patient are looked after by her. While the doctor is preparing himself for the operation she sees that all is in readiness about the chair.

If the patient's mouth is to be examined, she gets the tablet containing blank examination diagrams and proceeds to mark out all work to be done to get the mouth in a healthy condition. It may be well to add here that the assistant should be acquainted with dental nomenclature as it is given here in outlining the work. Then if the teeth are to be cleaned at this sitting, she puts the scalers on the operating table and while the scaling is being done sees that the patient is constantly provided with fresh water to which a little antiseptic has been added. Then a mandrel mounted with a brush, leather point or rubber cup is put on the hand-piece and a small glass dish with pumice mixed with peroxide and a few drops of Sanitol, Borolyptol or any good mouth-wash is placed on the table.

Well, here are a few minuted when the assistant is not needed at the chair, so she may slip into the laboratory if she has work there; if not, she is at the desk posting books, rolling gold foil or attending to some correspondence. The desk is in the operating room, and so if needed at the chair, is there at a moment's notice. As soon as the patient is dismissed from the chair, the assistant is there to take care of every instrument used during the operation. They are all placed in an antiseptic solution and dried with an antiseptic napkin, which is not washed, but thrown away. Then she turns to the patient, who by this time is probably ready to leave the office, and makes further appointments if needed. She then gets the day-book and makes the record and charges. Then linen, glasses, etc., about the chair are replaced with clean ones ready for the next patient.

If the next operation is one of filling, the assistant gets the dam, clamp, floss-silk, etc., in readiness. If the doctor should be detained at something for a few minutes, she may put on the rubber, fasten back the edges, adjust the saliva ejector, place the napkin to protect patient's lips and chin from contact of rubber and attend to all the accessories. She may then warm the chip-blower, wipe off the teeth twice with alcohol and dry them with warm air. When the operator begins, if quick to perceive, she can get out most of the instruments needed for the preparation of the cavity. During the operation she is always ready to use the chip-blower and get the needed medicine bottles. If it be an amalgam filling, she will, in looking at the size of the cavity, judge the amount or parts of material it will require to fill it; then mixes it also, putting the necessary pluggers, burnishes, etc., on the table. When the operator is ready for the filling material she separates small pieces of it at a time and with a pair of pliers (which are for her use only) she places them into the cavity. While the doctor is putting the finishing touches to the filling she replaces the medicine bottles from the table to the case. In removing the dam she should be ready to help remove all the accessories and take charge of the wet dam, also removing towel from patient, etc.

If a gold filling is to be made she places the gold tray and hand mallet on the table, and if she is familiar with the operator's methods she knows just about what line of gold pluggers are needed. When the doctor is ready for the gold she anneals it (with her pliers) and places it in the cavity. In all these things it is seldom necessary for the operator to tell her what to do, for a simple nod of the head will tell her that he is ready for the malleting. In case a stronger blow is needed during the malleting a positive nod of the doctor's head or more firmly placing the plugger will tell her just what is needed at that moment. When the filling is packed and while the operator is using the purnisher she gets disks and strips at hand, putting a little vaseline on them to prevent friction. She holds the rubber well away while they are being used to keep it from being caught in the engine. Then again, when it comes to removing the dam she is ready to take care of it as well as the holders, napkins, etc. If the filling is too full she is there with the syringe to throw a small stream of water over the stone while it is being ground down.

Now if a cement filling is to be made, while the operator is preparing the cavity she gets out the proper shade of cement to be used and when he is ready for the material mixes it and places it in the cavity. So it is with treatment cases; she places medicines on the table, hands the warmed gutta percha to him as well as the burnisher. She will be found useful in mixing impression materials, warming wax for bites, separating models, polishing bridges, crowns, plates, selecting teeth, making regulating models, and in fact can lessen the word of the operator nearly one-half.

Then she should stand between the operator and the many interuptions. If the telephone calls she answers it and in most cases it will be found that it is not necessary for the doctor to leave the chair. Regarding agents and others who wish to "see the doctor just a moment" but who do not want to see him professionally, they must give their card or let their business be known to the assistant. If the doctor is interested he will make an appointment to see him later when he is not busy. Usually the assistant can detect their business the moment they appear.

If two chairs are in the office it will be found a great aid on busy days, as a great many patients who come in without appointment require immediate attention. Often the assistant, with careful and judicious training, can do some of the minor operations. In some cases she can be taught to remove tartar, polish all surfaces of the teeth, massage the gums, treat the diseases of the mouth, take care of aching teeth with the most satisfactory results.

Then as to the stock—it should be her duty to see that there is no running out of anything at the wrong minute. If she keeps a small "want book" in which she places daily such articles as will need to be ordered and then make out the order for these articles at some leisure time before the day is over, there will be no running short of anything when needed most.

With these numerous duties that she has been given to do there are still many odd minutes when she is free to do other things, such as desk work, etc. Now, I have aimed to outline some of her duties as a "busy" assistant, and which, if the operator be free from, will enable him to give all his time and attention to his work as well as the most efficient service to his patients. I may have gone too much into detail in writing this articls, but I believe it is a subject that could furnish a very much longer paper.

MISTAKE IMPOSSIBLE.

Under certain circumstances a patient's anterior teeth, or, perhaps, their roots, need to be extracted and an artificial substitute made. It is very desirable to, as far as possible, restore the exact contour of the features about the mouth. But after the teeth have been extracted it is not always easy to remember the former fulness of the lips. To make an exact reproduction of the features possible, take a small facial impression in blaster. All that is necessary is from the chin to the nose, and far enough towards the ear to include any area of change. When the restoration is being made the impression may be placed upon the face and the lips filled out to it with wax. There can be no mistake or misunderstanding between the patient or her friends, and the dentist as to the former position of the lips.

TO REPAIR BRIDGE.

The first thing in repairing a bridge, I take a facing suitable to the case in hand. I drill my holes through the backing, and adjust the teeth in the proper position. Then I have a thin sheet of platinum—there is less danger of burning by solder than gold. Take a pair of pliers. Rub that around the tooth-pin, it will form a tube. Then clip off the pin from the tooth: close up the tooth; put the smallest particle, if solder, on that with a little borax; bed the tooth in the compound composed of asbestos and Portland cement —I buy it from hardware stores; they use it for covering plumbing. I do not wet the investment. but simply heat it up. Then you have a tooth with two hollow pins in it. Enlarge the hole slightly in your backing. Adjust your tooth. Use your cement if necessary. I use a ball-headed burnisher to spread the tube on the lingual end, and I have an attachment somewhat similar to the attachment on the eyelet in a shoe. It makes a small hole there, which, if you are using platinum you can fill with amalgam or with gold. If it is inaccessible you should use amalgam; if it is accessible it is preferable, of course, to use gold. You can hardly tell that the tooth has been replaced. I have been doing that for some years. So far I have found it entirely satisfactory.

MATRIX FOR PACKING PORCELAIN.

As we all know, the more dense we can pack the body the less shrinkage. In building up a large molar crown to be finished with one baking I have been pleased with the following experiment: Having the pins gripped firmly in the proper holder, I cut a strip of sheet steel—of the thinnest sort, such as we use for matrices—and pinched this together around the cap with a small screw vise. Then I oiled the inner surface of the matrix to prevent the porcelain from adhering. I was then able to pack the body of the crown very quickly and firmly, absorbing the moisture that was pressed to the surface from time to time with blotting paper. I built high enough to allow for prominent cusps, then released the vise hold upon the matrix. The spring steel let go, leaving a fine general contour and smooth surface. Then after having cut away enough of the plaster teeth adjoining to allow about one-sixth for shrinkage, the tooth to be was placed in the articulator and cusps carved to shape. Any required special forms of contour were added with a brush. I am sure that I got less shrinkage and a considerable saving of time by this method.

I may add here that it seems to me that I get a good final surface with soft spunk, dry or slightly moist, upon the nearly dry surface of the body.

SCHOOL OF PHARMACY.

OF THE UNIVERSITY OF ILLINOIS.

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THE BANNER CLASS.

The Junior Class of the School of Pharmacy is the largest in the history of the institution exceeding even the World's Fair Class, which previously held the record. There are enrolled in the Class which is now launched on its career, 193 students. The Senior Class is also larger than usual, numbering 64 students, a total enrollment of 257 and a gain in total attendance over last year of 50 per cent.

It is fortunate that the School is so well provided with laboratories. The large junior class has been divided into three sections for laboratory work; these sections operating at the same time in the different laboratories. This arrangement requires practically the entire time of the faculty but allows each student the maximum amount of personal attention and instruction.

An inspection of the home addresses of the Junior students shows that 102 are from Chicago, 58 are from Illinois, outside of Chicago, and 33 from outside the state Last session there were 50 juniors from Chicago, 38 from Illinois outside of Chicago and 25 from outside of the state.

A detailed summary of the home-addresses of the students of both classes shows that there are from Chicago 124, grouped thus, North Side, 15; South Side, 37; West Side, 65.

Illinois outside of Chicago is credited with 74; among the cities most numerously represented being Springfield, 5; Aurora. 4; La Salle, 3; Quincy, 3; Decatur, 2; Peoria, 3; Du Quoin, 3; Ottawa, 2; Joliet; 2.

States other than Illinois are represented as follows:

Wisconsin, 11; Michigan, 4; Iowa, 5; Indiana, 5; Ohio, 3; Missouri, 2; Mississippi, 2: Georgia,2; Kentucky, 1; Nebraska, 2; Virginia, 1; New York, 1; Pennsylvania, 3; Montana, 1; Colorado, 1: Utah, 2; Minnesota, 2; Tennessee, 1; India, 1;

While no doubt the great increase in attendance is partly due to the increased entrance requirements which go into effect in 1808, yet we believe that it is becoming more apparent each year to pharmacists and their clerks as well as to those connected with the schools and to the members of the state examining boards themselves that not only is a systematic course of instruction the best preparation for the state examination, but that it is also the best evidence of qualification and fitness for admittance to such examinations.

The general realization of this truth will mean a steady increase in the attendance at our pharmacy schools. It was a long step forward, when the Board of Pharmacy decided to accept the time spent by the student in a school of pharmacy as a part of the four years of pharmaceutical experience required by law and this, too, has no doubt been a factor in stimulating the young men to take up college work.

THE PHARMACEUTICAL CHEMIST COURSE.

The course leading to the degree of Pharmaceutical Chemist was inaugurated with a class of six students, which is as large a class as was expected owing to the fact that the arrangements to institute this course were completed so late in the summer.

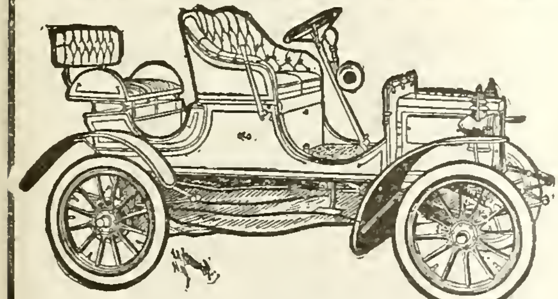
During the present session only the first year of the course will be given but next session both Junior and Senior Ph. C. classes will be arranged for and opportunity will be given for graduates of the Ph. G. course to take the additional work leading to the Ph. C. degree in one year.

ALUMNI NOTES.

Charles M. Ford,'74, and Robert Zimmermann,'84, each have a son enrolled in the classes this year, while W. J. Beyermann, '07, E. H. Fernholz, '01, Chas. Venn, '04, Harry Hibbe, '02, Ashton Staman, '06, and A. G. Wirth, '02, have brothers in attendance.

A contribution of ten dollars to the Alumni Ebert Fund has been received from Professor W. A. Puckner. The total amount in the fund is now $175.

Professor George M. Hambright, who occupied the chair of pharmacy in the Chicago College of Pharmacy from 1879 to 1884, died recently in Chicago at the age of 67 years. Mr. Hambright was engaged in the retail drug business in Chicago during the period of his connection with the college, having succeeded the late Albert E. Ebert at State and Twelfth Streets, in 1877, and remaining in business until 1884, when he returned to his home in Lancaster, Pa., where he has since resided. He had only recently returned to this city.



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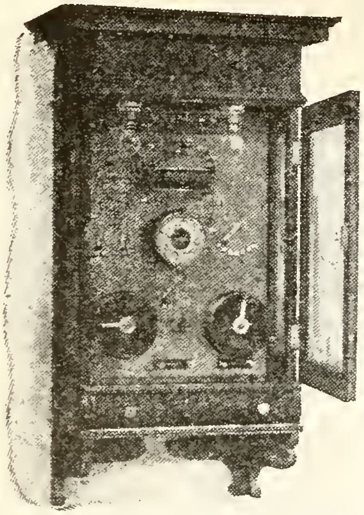

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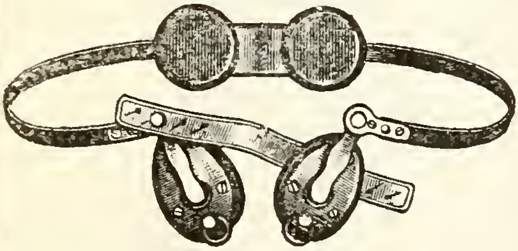

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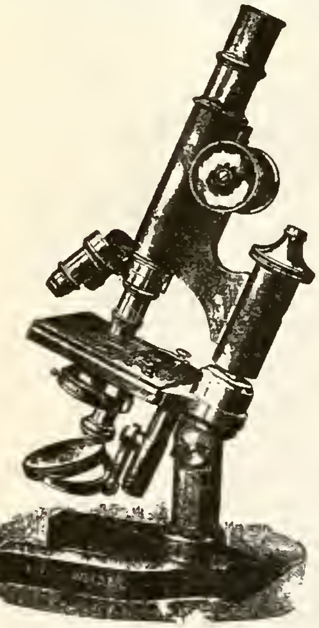

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SYPHILIS OF THE TESTICLE, ITS DIAGNOSIS AND INDICATIONS FOR TREATMENT.

By Dr. Bayard Holmes, B. S., M. D.
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A few recent cases have called my attention to the likelyhood of error in diagnosing enlargements of the testicles. In one instance a patient who was already slated in a certain hospital for the removal of his right testicle was shown by me in the course of ten days to be suffering from a chronic gonnorrheol orchitis and another patient whose rapidly enlarging testicle had been diagnosticated sarcoma made great improvement in general health and in the size and condition of the testicle after I had made a section through the dorsum testis and demonstrated several syphilitic foci in adjoining lobules. The gravest errors which are made depend upon the frequency with which gonnorrheal and tuberculous disease appear, and the relative rarity with which syphilitic and neoplastic enlargement of the testicle occur.

A great number of patients are suffering from syphilis without any knowledge of its presence. Among these no inconsiderable number after periods of relative decline discover almost accidentally that one of the testicles has become enlarged, heavy and dragging. In a few cases early sterility and impotency call attention to the testicles, and they are found the site of disease from which the diagnosis of syphilis is made and the beginning of treatment is undertaken. The clinical picture of this disease can be obtained from the following illustration cases.

Mr. K., 28 years old, had served in the Spanish-American war. Two years afterward he began to be troubled with discomfort and pain in the enlarged right testicle. He believed this to be due to a previous gonorrheal orchitis aggravated by an injury on the saddle, and paid little attention to it. He suffered considerably in his general health and strength and attributed it to the enteritis and malaria which he suffered while in the West Indies and on returning home. He had never had syphilis or any antisyphilitic treatment though he had had a number of rather light attacks of gonorrhea, and was suffering at the time from a mild posterior urethritis. In 1901, only a few weeks after the painful and heavy enlargement of the testicle began, the gland was at least twice the average normal dimension. The skin of the scrotum was not attached to the tumor nor was it vascular. The tumor was very regular in size and almost spherical. The epididymus was not involved. There was still some evidence of gonorrheal disease and he was accordingly treated by rest and irrigations for a few days without result. Just at this time I noticed a slight bulging over one of the upper lobules of the left testicle. A renewed examination for syphilis was begun. The pupils reacted properly and all the reflexes were present. The adenophathy was not positive. He was a relatively spare man, about five feet eight inches tall and looked a little dusky, and the skin seemed toneless and slightly senile. Otherwise a most careful general examination showed no local or general disease.

After a month of examination and tonic treatment he was taken to the hospital, anesthetized and an incision was made in the dorsum of the right testicle, disclosing five or six yellow masses, each about a centimeter long and two-thirds as wide, surrounded with smooth fibrous formless tissue, with no hint of the convoluted seminiferous tubules which originally formed the mass of the several lobules in

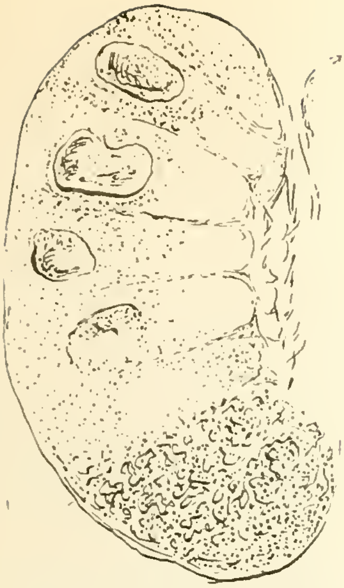

Fig. 1. Section of right testicle of K. showing four gummatta and portion of undestroyed seminiterous tabules in lowea part of testicle.

which each gumma was centrally situated. (Fig. 1). A small slice of the testicle was taken away for microscopical examination, and the testicle sewed together with catgut and replaced in the scrotum without drainage. The wound healed promptly and the tumor diminished notably in size. The patient was immediately placed upon the most vigorous antisyphilitic treatment. His breast was covered with a jacket impregnated with the peptonate of mercury as recommended by Shleich. Daily hypodermics of sublimatewere given and he was put at once upon gradually increasing doses of iodide of potassium in milk. His diet and hygenic surroundigs were made as ideal as possible. During the succeeding six months he improved wonderfully in ap- pearance and the tumor of the left testicle entirely disappeared. The right testicle diminished considerably in size but did not reach the normal while under observation. His weight gradually rose from 130 to 160 pounds. Since that time I have occasionally heard from him but have not seen him. I am lead to believe that he is doing well.

Mr. H, 36 years old, of English extraction, gave no history of any venereal disease or other sickness,except possibly an attack of gonorrhea. He was married in 1894 and his wife had been pregnant several times during the past ten years and had either been aborted with instruments or on one or more occasions had aborted spontaniously. He was a hard working machanic and consulted me reluctantly after he had incidentally shown a swollen right testicle to his family physician, Dr. Bingley. The patient insisted that the growth had been present only a few weeks and that it had grown rapidly with little or no pain or tenderness. The only inconvenience he felt wasfrom the deformity and weight. The tumor was twice the size of the normal and opposite testicle, it was quite regular in outline, a little longer (Fig. 2.) than it would have been if uniformally enlarged. The epidydimus and cord were soft, smooth and free from nodules. There were no enlarged lymph glands in the groin or in the seminal vesicles at the base of the bladder. The abdomen was free from any tumor and it was symptomless. There was no evidence of disease at the apices of the lungs or in the mediastinum. The adenopathy of syphilis could not be recognized at the elbows or elsewhere. The reaction of the pupils and the cutaneous reactions were normal. There were no scars in the fauces or on the body or penis and no discldrorations of the skin.

An examination of his wife disclosed no positive symptom of syphilis.

With a probable diagnosis of syphilis of the testicle and a possibility of sarcoma I decided to make a diagnostic incision. After exposing the testicle, it was opened by a longitudinal incision. The tissues were uniform in texture and it might have been a slow growing sarcoma. The testicle was therefore removed with the epididymus and cord. A section a little to one side of the first incision showed Prof. Zeit the characteristic gumma (fig. 2) and a further examination established its syphilitic nature.

The patient and his wife were then put upon antisyphilitic treatment. The results up the present time have been rather scanty.

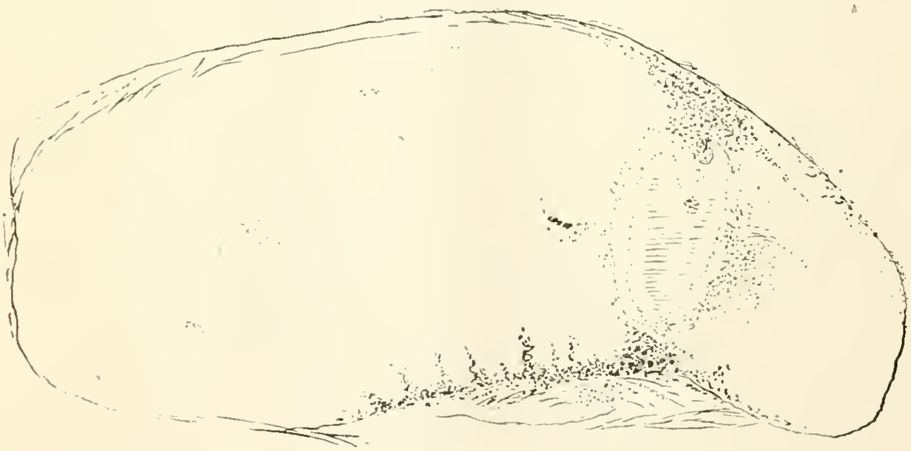

Fig. 2. Section of the testicle of H., single gumma, complete destruction of all seminiferous tubules except traces at hilum,

These two cases illustrate the two clinical forms of syphilis of the testicles with tumor-like enlargements. In the one case the growth was rapid and somewhat painful and the tumors were multiple. In the other case the tumor had come on so painlessly that it was unnoticed until a few weeks before examination and the focus proved to be single. Both patients denied almost the possibility of syphilis and presented the meagerest and most indecisive stigmata of the disease. One patient gave a history of injury on the saddle but the other had never suffered any traumatism that he could remember. The section of the testicle in one case made a decisive anitomico-pathologic diagnosis. (Fig. 1). The fact that the section of the other testicle failed to reach the single gumma which it contained and the general fibrous condition of the rest of the testicle led me to an erroneous diagnosis, and I removed the testicle which might perhaps just as well have been left in the scrotum. Both patients were at the ages at which tuberculosis of the testicle is most frequent. They were also at the age at which sarcoma is most prevalent.

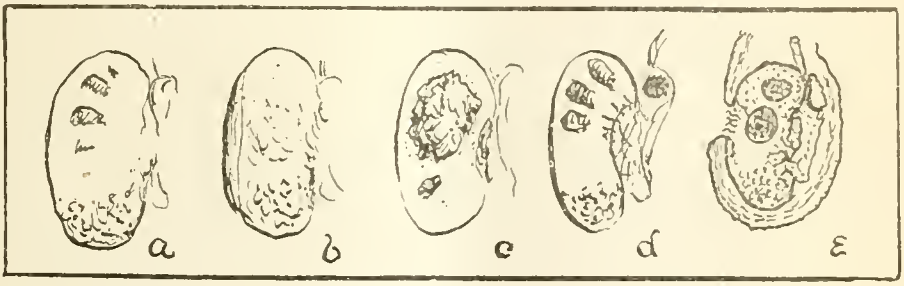

Fig. 3. A series of sketches showing five forms of syphilis of testicle, a gummata b sclerosis, c abscess d gumma of testicle and epididymus, and e ulcerative gumma.

Both the testicle and the epididymus have been found affected by the syphilitic disease. We find clinically during the secondary stage a mild acute orchitis which rarely is brought to the notice of the physician and never I believe to the notice of the surgeon. In the tertiary stage of the disease two rather distinct forms of syphilis are brought to clinical and surgical attention. The more common one is a gumma which appears in the middle of a lobule and is surrounded by a wall of more transparent tissue and enclosed in the fibrous tissue which displaces the convoluted seminiferous tubules. One or more of these gummas in various stages of caseous degeneration are generally observed. Each of these masses takes on somewhat the shape of the lobule and occupies half or two-thirds its length. Generally these gumma are a centimeter or two in their longest diameter and less than half of that in other directions. The larger gumma are usually in the upper part of the testicle and they sometimes form a district series downward. It is most noticable and diagnostic from tuberculosis and sarcoma that no remnant of the seminiferous tubules can be found in a lobule which contains only a small gumma. (Fig. 2 and Fig. 1.) The caseous gumma is yellowish in color and somewhat resembles a tuberculous focus. It is surrounded by a clear, slightly bluish and gelatinous layer and less than a millimeter in thickness. (Fig. 5 and Fig. 6.) The rest of the diseased testicle is an almost homogeneous, slightly vascular, greenish-red mass not unlike the cut surface of a sarcoma or sarcomatous lymph gland. The trabeculae which divide the lobules is perfectly incorporated in the tumor and only shows at intervals and especially near the mediastinum testis or corpus highmori. When the disease has advanced to the limits of caseasion the several gumma break down into one another and produce irregular cheesy masses with no recognizable anatomical form. However far the disease may have progressed there is usually some small portion of the seminiferous tubules left as a remnant still connected with the epididymis. (Fig. 3, a and b.) Only rarely is the epididymis itself destroyed. (Fig. 3, d.) The second form is a sclerosis of the testicle similar to that found with gumma but tending to contraction rather than tumor formation.

Since Dron in 1863 (Archiv. general de medicin, vol. II, p. 513, 724, Nov. 5963) first discribed a case of primary isolated gumma of the epididymis a great number of similar observations have been made. Most of them have been from postmortem examinations but many of them are clinical and from the autopsy in vivo. In 70 cases of syphilis of the testicle there was coincident syphilis in the epididymis in 30 cases and in 13 cases isolated syphilis of the epididymis. Balme found five cases of isolated syphilis in the head of the epididymis without other disease of the testicle. These conditions might have easily been mistaken for tuberculosis. In five other cases the epididymis was gummatous. The vas deferns is very rarely affected by the disease. In this respect it differs greatly from tuberculosis in which it early takes part. Nevertheless tumors of the vas both within and without the pelvis have been observed as surgical and patholocial novelties which have reached the size of the fist. The coverings of the testicle beyond the tunica albuginea are rarely involved in the disease and it is unusual for the skin to break and fistulæ form which is such an early result in tuberculosis and many malignant diseases.

Syphilis of the testicle is not a very rare disease and it comes to the surgeon as a tumor of the testicle with a frequency which cannot be neglected if we consider the post-mortem findings and the clinical frequency of recognizable gumma of the testicles in clinics for venereal disease, we should consider it next to gonorrheal infection as the cause of enlarged testicles, but from our standpoint it is much rarer because the patients present themselves to the surgeon with a tumor of the testicle and without the history of syphilis and generally with scant objective signs of previous infection. Parrot and Hutinol (ref. Kocher) found syphilis of the testicle in one out of three cases of congenital syphilis. This condition is found in children at birth when a testicle the size of a plumb, with or without hydrocele has been recognized as the only syphilitic lesion. Sometimes both testicles are hard, smooth and enlarged glands. Generally the disease has shown itself before the child is two years old and is almost as often two-sided as single.

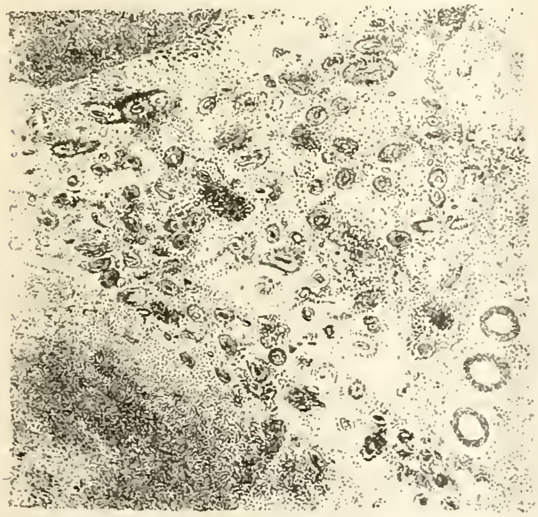

Fig. 4. Section of syphilitic testicle.

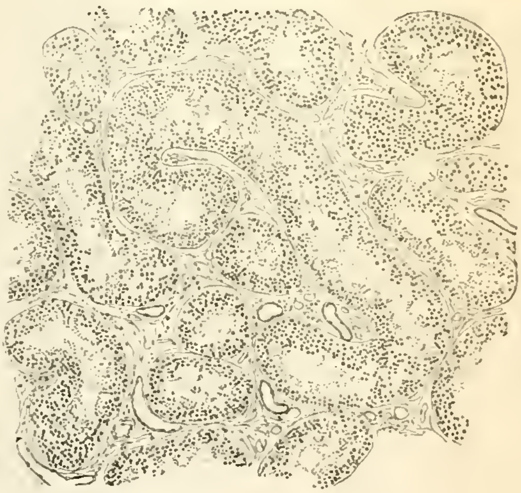

Fig. 5. Normal testicle tissue.

The systematic writers on syphilis consider that the testicle is involved in acquired syphilis in all the way from one in ten to one in thirty-two patients. Balme found seventy cases of syphilis in the testicle in two thousand three hundred cases of syphilis. Most cases of syphilis of the testicle appear between thirty and forty, and the rest between forty and sixty. [Tuberculosis is most common between 20 and 40.] The disease appears at various intervals after the primary infection but generally it is somewhere from six to twenty years, rarely as early as a few months or as late as thirty years after the chancre. Only rarely does it seem to be initiated by an injury.

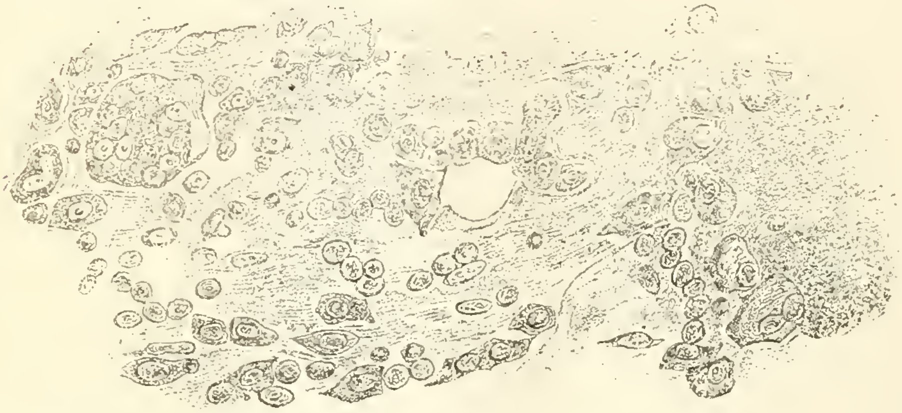

Fig. 5. Encupulated gumma of the epididymus. (Kocber).

There is little difficulty in making the diagnosis of syphilis of the testicle in a patient who gives a history of chancre of the penis six to twenty years previously or has the unmistakable stigmata of the disease ni the adenopathy, the adhesive iritis or the scars of secondary or tertiary eruptions or these ulcers themselves. When however,the patient between thirty or forty comes with a tumor twice the diameter of the normal testicle which he has just recognized, the absolute diagnosis may be a matter of grave consideration. If the testicle is stony hard, regular in outline, painless on pressure with an intact epididymis and a cord free from enlargement, irregularity or roughness and the patient is of a suitable age, the diagnosis must rest between syphilis and one of the tumors of the testicle. Tuberculosis is practically excluded. If however, the tumor is irregular, the epididymis involved, the skin adherent or even presenting an ulcer there may be some question of tuberculosis even though the seminal vescicles and region of the prostate remains free from small tumors. If the tumor is associated with hydrocele the diagnosis is rendered difficult, especially if the hydrocele is small enough to be mistaken for a breaking down tuberculous nodule, or is irregular, multilocular and extensive enough to be mistaken for a cystoma of the testicle either on an adenomatous or teratoid basis.

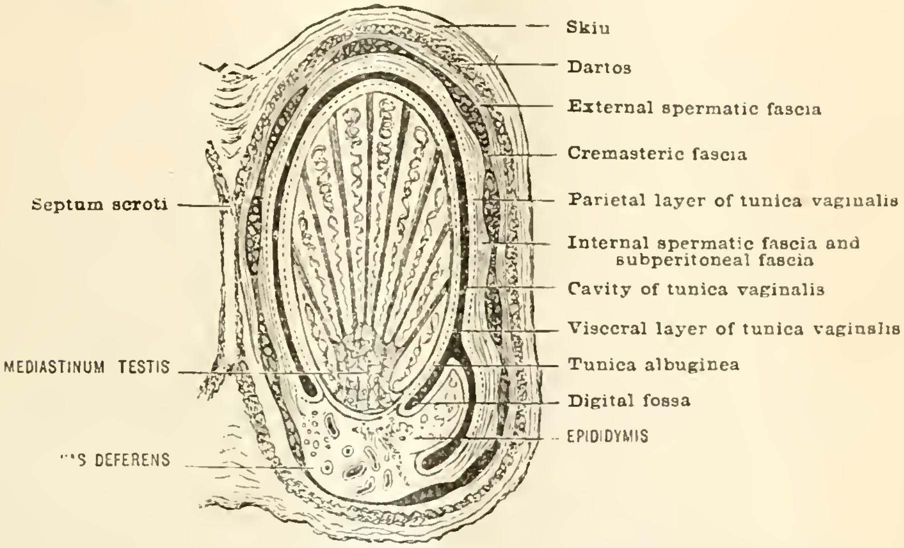
Skin
Dartos
External spermatic fascia
Cremasteric fascia
Septum scroti
Parietal layer of tunica vaginalis
Internal spermatic fascia and subperitoneal fascia
Cavity of tunica vaginalis
Visceral layer of tunica vaginalis
MEDIASTINUM TESTIS
Tunica albuginea
Digital fossa
EPIDIDYMIS
S DEFERENS

Fig. 6, Transverse section of testicle.

It is interesting to notice the growth of our knowledge of spyhilitic testicle as recorded in the systematic study of syphilis which was so active in the early part of the ninteenth century. The clinical picture and course of the disease was best described by the french writers. Astley Cooper placed the subject before English readers in 1835 and Hamilton in his essay on syphilitic sarcocele (Dublin 1840). Widal (Traite de Pathologie Externe) 1861 was one of the first systematic writers to recognize clearly the difference between tuberculosis and syhilitic disease of the testicle and give the clinical diagnosis between the two varieties which were demonstrated pathologically by Virchow, (Virc. Arch. Vol. XV, Page 263, 185). Chelius 1847 failed to do this although he recognizes scrofluous swelling of the testicle by itself, he says "in consequence of inveterate pox, syphilitic swelling of the testicle arises slowly without any exciting cause and is commonly developed in the epididymis and spermatic cord." Gross, 1862, gives a very clear account of the disease but in some particulars mars the picture by introducing manifestations which are distinctly tuberculous. Sigmundin Pitha

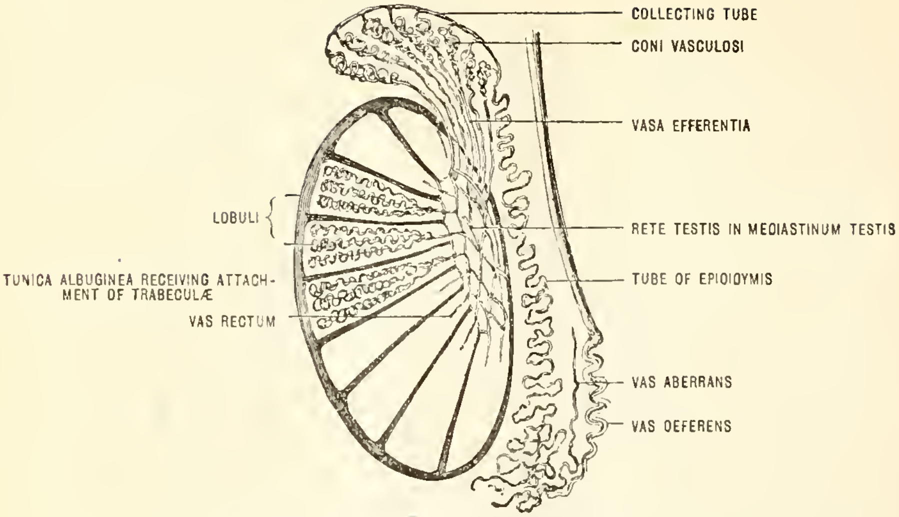

Fig. 7. Longitudinal section of testicle.

and Bilroth's Handbuch, 1870, places the subject clearly with no clouding by confusing cases of tuberculous origin with it. From this time on only the more slovenly writers failed to keep the characteristics of syphilis, tuberculosis and sarcoma distinct. The loss of function which attends and even sometimes preceeds the disease is dwelt upon by Forgue and Reclus 1892, and the fact that with treatment a considerable restoration is sometimes effected. Kocher (Die Krankheiten der Manlichen Geschlechtsorgane 1887, page 343) gives an exhaustive treatment of the subject and a full account of the literature up to that date.

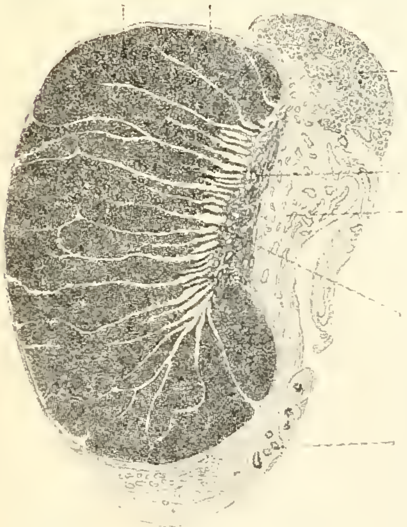

Fig. 8. Longitudinal section o testicle.

Syphilis of the testicle must be diagnosed from many likely and unlikely conditions.

1. The tumor is translucent when examined as an egg is tested in a strong light, and after the fluid is removed nothing but normal testicle is left, *Hydrocele.*

2. The tumor is opaque but when tapped a bloody fluid is removed leaving the normal testicle in the scrotum, *Hematocele, Hematoma tunica vaginalis communis, propriae.*

3. The tumor is opaque but when tapped is found to be pus, (non-tuberculosis) leaving the normal testicle behind. *Pyocele.* Abscess of the tunica vaginalis testis usually after gonorrhea.

4. The tumor is opaque or translucent and fluctuating but after the removal of the fluid a solid tumor remains which is composed of the enlarged epididymis and accompanied by an enlarged cord and seminal vesicle on the same side, *Tuberculosis.*

5. The tumor is opaque, translucent and fluctuating but after removal of the fluid the tumor is a regularly enlarged testicle without any change in the vas deferens or seminal vesicles, *Syphilis.*

6. The tumor is solid, regular and painful on pressure, no enlargement of the vas deferens or the seminal vesicles, *Sarcoma.*

7. The tumor is solid, painful, with high temperature, following urethritis, *Gonorrheal Orchitis.*

8. The tumor is solid, painful, with high temperature, without urethritis but after instrumentation or after cystitis or prostititis. *Suppurative Orchitis.*

CONCLUSIONS.

1. Syphilis of the testicle should always be looked for in a painless swelling of the gland and in all regular tumors in the adult.

2. Therapeutic tests should be made before surgical diagnosis is undertaken except where there are strong indications of sarcoma.

3. The testicle should not be removed except for secondary pyogenic infection.

THE TERMINATIONS AND TREATMENT OF EXTRA UTERINE PREGNANCY.

By Aime-Paul Heineck, Chicago, Ill.
Surgeon to the Cook County Hospital.

Ectopic gestation is of far more frequent occurrence than we believe. The morbidity and the mortality of this condition are largely due to our inability to timely recognize it. We can more knowingly discuss the treatment of extra-uterine pregnancy after we have become familiar with the possible terminations of this condition. What can nature unassisted do for our patients? What can surgical aid accomplish? This is the motive of this paper.

The possible terminations of extra-uterine pregnancy are the following:

I. The pregnancy may go to term, and a living child be delivered through channels created by the surgeon. This is an exceptional occurrence. Well authenticated cases are, however, reported. In connection with this termination we must state that extra-uterine children frequently die in the first few days of life; many of them have lived only a few hours; they are frequently the subjects of deformity. The operation necessitating their removal from the maternal organism, may prove fatal to them; may prove fatal to the mother, either immediately, from surgical shock or from excessive hemorrhage; or secondary, from toxemia, septicemia or pyemia. That ectopic gestation may terminate in a living and viable child, (development of the child having taken place either in the peritoneal cavity between the folds of the broad ligaments) applies as much to ovarian as to tubal pregnency. It, however, has been much more frequently observed as a sequence of tubal gestation. That an ovarian pregnancy can go to term is attested by such authorities as Sanger, Küstner, Spiegelberg, Leopold, Gottschalk and Herzfeld.

II. The pregnancy may go to term; the fœtus remain undelivered and die, persisting in the maternal organism.

Changes may take place in the fetus and in the surrounding tissues as described in the next parapragh.

III. The fetus may die at term or previous to term. Fetuses that die at an advanced state of development cannot be absorbed. The death of the fetus does not imply fredom from danger to the mother. Degenerative changes, usually, begin in the fetus after its death. The fetus may:

a Putrefy. The absorption of the products of dissolution will cause loss of appetite, emaciation, a low grade of sepsis with hectic fever, loss of strength and other symptoms.

b . May become septic, (a) from communication with neighboring organs, as in Herrick's case in which the fetal sac had formerly given a dull note on percussion, suddenly gave a tympanitic note, showing that the fetal sac contained air that had entered it from a perforation of the intestines. (b) By infection extending by contiguity from neigh boring organs. If a fetal cyst become septic the woman may perish, either directly from inflammatory complications or from the absorption of putrid material resulting from decay.

c May continue to persist in a cartilaginous state.

d It may become converted into a friable, fatty substance constituting what is known as an adipocere.

e A lithopedion may form, of which three chief forms may be distinguished (Kuchenmeister). "In the first the mummified fetus may be shelled out easily from the classified membranes (Lithocelyphos). In the second the fetus becomes adherent to the membranes at different points, which become calcified, while the other portions become mummified, (Lithocelyphopedion). In the third form the fetus is discharged through the rupture of the membranes into the peritoneal cavity and later becomes incrusted with lime salts. (Lithopedion). Zeigler's Patholygy." In extra-peritoneal development there is a lessened tendency to the development of. lithopedia. W. H. Wales, (*Boston Medical and Surgical Journal*, 1887, CXVII,. p. 151) reports a case in which a lithopedion was retained in the abdominal cavity for thirty years.

f The fetus may become encysted by a connective tissue membrane, and remain for a time or for always quiescent, doing no harm to the patient beyond being a mechanical inconvenience (Playfair). However, while she is carrying an encysted child a woman is never free from danger.

g The fetal cyst may mechanically interfere with a subsequent intra-uterine pregnancy; it may have to be removed to allow the intra-uterine pregnancy to go to term, as in Vingnard's case. The dead extra-uterine fetus was well tolerated for five months, then owing to a developing intra-uterine pregnancy it became a source of greater and greater discomfort and finally had to be removed during the fourth month of uterine gestation.

h It may cause symptoms of irritation of contiguous organs, rectal tenesmus, vesical tenesmus, painful micturition, etc. It may cause pressure symptoms, for instance, intestinal obstruction by compressing the intestines, urinary retention, by compressing the bladder or ureters. It may cause various misplacements of the uterus.

i It may cause diagnostic errors. After death the liquor amnii is absorbed. No more is secreted. The cyst shrinks and the product of conception may remain quiescent in the maternal abdomen. Full term fetuses have frequently been found in the abdominal cavity, at the autopsy table and on the operating table. Nevertheless the ova that develop to term or near to term are clinical rarities.

j After the death of the fetus the gestation sac may be considered as a cyst, a fetal cyst. The cyst walls may, and frequently do, become adherent to surrounding organs or surrounding tissues, viz.: bladder, vagina, intestinal canal or abdominal wall, by either or by all of which channels the cyst may eventually, completely or incompletely eliminate its decomposing contents, hence the cyst may communicate, 1 with the bowel by one or several openings, 2 may open into the vagina, 3 may open into the urinary bladder. When the cyst ruptures into the urinary bladder, the vesical symptoms are caused not only by the irritating character of the fluids which find their way into this organ, but likewise by the large number of bones, any one of which may become the nucleus of a stone. Guisy removed a three months fetus from the urinary bladder. Joseph Bossuet reports a case in which the fetus was mostly in the urinary bladder and partly in the rectum. It was covered with calcareous matter. 4 May open into the rectum and the bones and other ovular contents be expelled through the anus. 5 May open through the abdominal wall.

k The fetal cyst may become adherent to, and rupture into the uterus, as in Bertino case. In this case. after the death of the fetus, the fetal sac became adherent to, and ruptured into the uterus, leading to the escape of bony fragments from the vagina. It then became adherent to the abdominal wall and ulcerated through the umbilical region, leading to the escape at this point of a fetid yellowish liquid and the fragments of necrosed tissues. Eighteen months after the death of the fetus a laparotomy was performed. The aperture of communication between the uterus and the fetal sac was demonstrated, and the remaining bones of the skeleton were removed from the fetal sac at time of operation.

l The fetal cyst may open by more than one channel in the same patient. In Fenwick's case the sac, which was of some years' duration, contained a macerated fetus; by one fistula it communicated with the bladder.

m It may rupture into a cyst contained in the abdominal cavity.

IV. Rupture of the gestation sac may take place before or after the death of the fetus. Rupture is one of the terminations of tubal pregnancies, be the pregnancy tubo-uterine, intra-mural, isthmic or ampullary, etc Ovarian pregnancies are subject to the same accident. Rupture almost always takes place at the point of least resistance, which is either the placeneal site or the future placental site, for the chorionic villi remain longest at this point. Rupture may occur in the primary or in the secondary gestation sac. The gestation may be arrested by this accident or may continue uninterrupted, though changed in type. The rupture is associated with hemorrhage, slight or profuse, circumscribed or diffuse, belonging to one of the three following types. or to a combination of two or of all of these types, (a) extra-tubal, (b) intra tubal. (c) intra-mural. As mentioned previously the rupture may lead to the cessation of the gestation; it may not interfere with its continuance. If the aminotic sac be ruptured and there be an outflow of the aminotic fluid, gestation will come to an end. I have only come across one case in the literature of a living extra-uterine child, on which at the time of operation no aminotic sac could be discovered. In the early stages the ovum will be absorbed; the younger the ovum the less prolonged the process of absorption. An ovum in a very advanced stage of development will not be absorbed and thus remains a source of danger. Necrosis of the sac and of the vessels supplying it can cause death of the host.

Extra-tubal rupture may be into the peritoneal cavity; if the ovum does not perish, the pregnancy will be continued as a tubo-peritoneal or peritoneal pregnancy. Extra-tubal rupture may also take place between the folds of the broad ligament. Pregnancy may here continue as an intra-ligamentary pregnancy, called by some authors a tubo-abdominal pregnancy. Intra-ligamentary pregnancy is far more infrequent than tubo-peritoneal pregnancy. Otto Kustner, who from October, 1893, to October, 1898, operated on 107 cases of Ectopic gestation, never once in his series met a tube-abdominal or intra-ligamentary pregnancy.

Intra-tubal rupture may, if the abdominal opening of the tube be occluded, lead to an accumulation of blood in the cavity of the tube, viz.: Hæmato-salpynx. The ovum continuing to develop in the tube, may secondarially rupture into the peritoneal cavity or between the folds of the broad ligament and gestation therein continue. If the tube be not occluded the blood escapes into the peritoneal cavity giving the condition of pelvic hæmatocele, if the hemorrhage be circumscribed; if the hemorrhrge be free in the peritoneal cavity we have a hæmoperitoneum.

The hemorrhage that attends and follows rupture is very dangerous and usually requires immediate surgical interference. 1—This rupture may be due to hemorrhage between the chorion and the tubal mucous membrane, 2—hemorrhages from the tubo-chorionic vessels into the tubal sac, over distending the latter; 3—to the cyst wall being thinned and weakened by the chorionic villi; 4—the ovum may rupture from a traumatism, be it ever so slight; 5—to absence or feeble development of the decidua reflexa. As a general proposition, we can assert that the trophoblasts are the causative agents of early rupture; mechanical causes, that of late rupture. These trophoblasts have an erosive destructive action upon the muscular as well as upon the vascular tissues. Ruptures of ovarian gestation sacs, like tnbal ruptures, usually occur before the third month of gestation. In the intra mural-ruptures, the blood extravasation is separated from the lumen of the tube by a layer of muscle tissue, more or less marked.

We, then, have as a most alarming complication of tubal or ovarian ruptures, hemorrhrges, small or large. We must keep in mind that the amount of blood discharged bears no relation to the extent of the rupture. Some of the most severe hemorrhages occur from orifices that are very small. The rupture may be punctiform in size, may be a large tear; may be almost a complete rendering of the tube. If the rupture be into the peritoneal cavity, we may have the formation of an haematocele, called by some haemoperitonenm, that is a circumscribed collection of blood located in the pelvic peritioneal cavity and firmly separated from the general peritoneal cavity by adhesions and small celled infiltration, or we may have a flooding of the peritoneal cavity, which flooding will cause the patient's death unless the hemorrhage be arrested. There may be one severe and perhaps fatal intra-peritoneal hemorrhage; or there may be recurring hemorrhoges, causing maternal death. The prognosis of an encysted peritoneal or of a diffuse intraperitoneal hemorrhage, is the same, whether the cause be a ruptured tubal or a ruptured ovarian gestation sac. The outcome is dependent on the extent, duration and continuity of the hemorrhage, not upon it; source. Retro-uterine haematoceles are usually due to extra uterine pregnancy, not uncommonly villi or even an embryo may be demonstrated in them. The uterus may become enveloped by this bloody mass, producing what is known as a curcum uterine haematocele. Intra-peritoneal hemorrhages due to a ruptured ectopic gestation sac, have the same gravity as intra abdominal hemorrhages due to other causes. The signs and symptoms of acute anemia are quickly produced.

If the extra-tubal rupture be between the folds of the broad ligament, the extravasation and accumulation of blood therein will separate these folds and a pelvic haematoma will be produced. This haematoma is almost invariably unilateral and needless to say is on the side of the rupture. In some cases, however, it may diseect forward between the uterus and bladder, or backward around the uterus beneath the peritoneum and extend to the opposite side. In those cases where the accumulation of the blood is very great, rupture may take place into the peritoneal cavity, giving us the combined condition of both intra-peritoneal and extra-peritoneal hemorrhages. The same may occur in a haemato solpynx. The excessive tension may lead to extra-tubal rupture into the peritoneal cavity or between folds of the broad ligament or in both directions as we have previously said. The hemorrhage associated with the rupture of a tubal or an ovarian gestation sac, may lead to immediate death, may lead to the formation of a pelvic haematoma or to the formation of a pelvic haematocele. These encysted blood collections, haematoma or haematoceles, which may be and frequently are, partially or completely, absorbed, may give rise to the formation of fibrous bands or fibrinoid or fibroid masses, may become infected and thus become the seat of a suppurative inflammation. (We have no certain means at our command enabling us to know in every case, before operation whether rupture has taken place in the peritoneal cavity or between the folds of the broad ligament).

If the inflammation remain circumscribed, an abscess is formed. If the inflammation spreads to, or if the abscess bursts into, the peritoneal cavity, a circumscribed or a diffuse suppurative peritonitis results. If the inflammation extends to the retro-peritoneal connective tissues, there will be a cellulitis, with all its accompanying dangers. These internal hemorrhages attending rupture far exceed in importance and copiousness the uterine hemorrhages that very frequentlp occur in extra-uterine pregnancy. These latter are from the decidua that forms in the uterus in all cases of extra-uterine pregnancy. (J. Veit) They are of some diagnostic value, but are insignificant in importance, when compared with the hemorrhages that come from the placental side.

We must keep in mind that hemorrhage, internal or external, at some period occurs in all cases of extra uterine pregnancy. The symptoms of shock and loss of blood are much greater in intra-peritoneal hemorrhage than in the intra-ligamentary form. The hemorrhage continues in the former, but necessarily ceases in the latter as soon as the pressure of the extravascated blood exceeds the intra vascular pressure. Hemorrhage into the peritoneal cavity being a practicllay unlimited space, is bound to be more formidable than the intra-ligamentary form, because less likely to be spontaneously arrested than a hemorrhage into connective tissue.

V The migration of the ovum into the abdominal cavity, through the ostium abdominale is known as tubal absortion. (Bland Sutton) We may have tubal abortion, tubal abortion may also lead to haemato-salpynx; usually, however, the blood escapes freely thrcugh the ostium abdominale into the cul-de-sac of Douglass, and there may become encysted, or it may escape into the general peritoneal cavity. Tubal abortion may be due:

1—To contractions taking place in the tube, whereby separation of the placenta, or hemorrhage into its substance are provoked. The tube contracts to expel its contents.

2—To detachment of the ovum by frequently repeated small hemorrhoges. Extra-ovulary hemorrhages cause a detachment of the ovum, at times a bursting of the capsule at the level of its reflexa.

3—To hemorrhages taking place in the muscular fibres of the tube.

4—The ovum being carried out of the tube by escape of blood from intra-tubal hemorrhages.

5—Intra-ovulary hemorrhages. The intra-ovulary hemorrhages cause the death of the ovum. The ovum being dead, the villi atrophy, and as they cease to occlude the placental sinuses we have hemorrhages which are the consequence, and not the cause of ovular death.

In the early stages, abortion and rupture are due directly to the destructive action of the tropholasts on the peritoneal, muscular and mucous tissues can be indirectly due to increase of tention caused by hemorrhages from vessels, the walls of which have been destroyed by ectoblastic cells. Tubal abortion may be complete, may be incomplete. In the former, there is usually one attack of pain and weakness. In the incomplete form, we have repeated attacks of weakness and syncope. The abortion, if the amainotic sac remains intact, and if the ovum resists abortion, leads to a tubo-peritoneal pregnancy.

If the villi or placental attachments are destroyed the ovum being unable to form secondary attachments to other structures, from necessity dies. The rupture of the amnion in the early months, leads to the death of the embryo or fetus. Later, rupture is, almost invariably, due to mechanical violence.

Tubal abortion occurs almost always in the early months. Vidal claims that complete tubal abortion after the second month is impossible. Martin, has, however, seen it occur at the ninth month. This late occurrence of abortion is rare.

The following are some explanations given for the frequent occurance of tubal abortion during the early period of tubal gestation:

1—The union between the placental villi and the tubal mucosa is not very intimate (at the period), hence, a very small extravasation of blood suffices to disturb their mutual relation.

2—The tube is at that period not much distended.

3—The tubal ostium abdominale is usually open.

4—The tube opposes greater resistance to rupture.

5—Its muscular layers can furnish contractions powerful enough to chase the ovum and blood extravasate, out of its lumen into the abdominal cavity.

TREATMENT.

We assert, without the least hesitancy, that this is as surely a surgical disease as appendicitis and though, as, in that disease, a clinical cure may at times be obtained by non-operative measures, it is not common for that clinical cure to be an anatomical cure. We maintain with equal emphasis that that treatment is the most conservative which saves the most human lives. In these cases the viability of the child should not be considered, except as it endangers the life of the mother. We must look on the extra-uterine fetus as a parasite, as a malignant new growth. We must be prepared to destroy the fetus to save the mother. We must from the stand point of treatment, consider if the patient will live:

(a) If she be abandoned to nature; (b) if she will live, if she be operated, and if the dangers incidental to opening the peritoneal cavity are less than those of rupture of the gestation sac. Nature's tedious methods of relief and the many dangers to which the mother is exposed during its occurrence, do not justify non-interference. Even the absorption of large uninfected collections of blood is far more prolonged than post operative convalescense.

Simple measures, such as puncture of the fetal cyst have caused death of the mother from secondary hemorrhage from septiceamia. This measure has been abandoned because the discharge of the liquor amnii does not always cause the death of the fetus. The method is dangerous. It is inefficient. We know that even after his death, the fetus, as long as it remains in the maternal organism, can at any time become a source of danger to the mother. The injection of narcotic substances into the cyst cavity so as to poison the fetus, the attempts to destroy the fetus by the application of electricity, have all deservedly been cast aside. These methods have fallen into disrepute because of their uncertainty. They at times secured the death of the fetus, but they did not restore the mother to health or protect her from morbid, and, too often, fatal complication. The only treatment which offers the mother a positive assurance of complete restoration to health is the operative treatment.

W. J. McDonald says "Time forbids entering into the discussion of the injection of nercotics into the gestation sac, to induce the death of the fetus, as well as that of the application of electricity in the treatment of extra-uterine pregnancy. These plans have been repeatedly discussed and so universally condemned, that nothing is to be gained by further considering them.

The diagnosis of ectopic gestation is in itself an imperative indication for operation. Lives can be saved by accurate diagnosis, prompt decision and skillful operation. In the absence of urgent symptoms, we still have an operation of necessity; we can proceed, deliberately, and select our place and time of operation, giving our patient the benefits of all the refinements of an aseptic and an anti-septic surgical preparation, and endeavor to operate under the best hygienic conditions. If rupture has occurred and progressive hemorrhage has taken, or is taking place, we have an emergency operation.

Your first indication is to stop the hemorrhage. This indication is urgent. Hypodermic medication will not accomplish it. To stop this hemorrhage you cannot depend upon the coagulability of the blood, upon the lessened force of cardiac action; upon such agents as heat, cold, styptics and the like. You must open your abdomen, you must stop the hemorrhage at its source, you must ligate bleeding points with an aseptic absorbable ligature material, if you have it at hand; with antiseptic non-absorbable ligature material, if the former be not at hand.

Even in the absence of urgent symptoms you must not long delay operation, because as long as the embryo or fetus lives, the placenta increases daily in size, in vascularity and in difficulty of removal. Every day the increasing size of the child and of the placenta, add to the danger of secondary rupture.

J. Veit, says "Operate in all cases of extra-uterine pregnancy, whatever may be the age of the embryo or fetus." He also lays special emphasis upon this indication which is "Operate immediately in all cases in which there is a suppuration of the fetal sac, and drain freely". Now, sometimes a propable diagnosis is all that can be made.

My views may be considered extreme. They are, however, the result of my experience and of the benificient results which have uniformly attended their observance. I do not say, all the indications that call for a cessation of an intra-uterine gestation, are valid indications for the cessation of an extra-uterine pregnancy. I go farther than that, I believe and declare that a diagnosis of extra-uterine pregnancy is itself an ample cause for operation. I also must add that ectopic gestation is an illness, and the sooner the illness is brought to an end the better. The most successful operations are those performed early upon unruptured ectopic gestation sacs. Operation is far more likely to be successful when performed early, than if performance be delayed until septicaemia and suppuration of the sec have occurred.

The co-existence of intra-uterine pregnancy is not a countra indication. E. G. Zeinke, collected 88 cases in which both intra and extra-uterine pregnancy existed.

If done skillfully the progress of uterine gestation is not interfered with by severe operative interference. In these cases the ectopic sac must be removed; the intra-uterine gestation must not be molested. There is abundant evidence that the removal of tumors of the uterus, broad ligament and ovaries,or any other abdominal growth, can be done during the pregnant state without jeopardizing the patient's life, any more than in the non-pregnant state. The same applies to the removal of the ectopic gestation sac.

The condition of ectopic gestation is no doubt at times very difficult to diagnose. At times, only a probable diagnosis can be made. But those conditions which simulate extra-uterine pregnancy are conditions, the relief of which, can only be obtained by operative measures. We must keep in mind that pregnancy intra and extra-uterine, is not the only condition that causes enlargement, swelling and softening of the uterus. In making your vaginal and bimanual examination, be most gentle so as to avoid rupturing the fetal cyst, if this has not occurred, so as to avoid causing fresh hemorrhage, or increasing the same, if primary or secondary rupture has occurred.

An early gestation sac with rupture in the extra peritoneal tissues may give signs and symptoms similar to those given by pelvic abscesses, by uterine myomata, by cornual pregnancies, etc. The following conditions may simulate an unruptured ectopic gestation sac; by anteflexion, by retroflection, by ptosalpinx, by hydrosalpinx, by ovarian cysts, by myoma, sarcoma, carcinoma of tube, ovarian neoplasms, adnexal or peri adnexal tuberculosis. The early ruptured tubal or ovarian gestation sac with free intra-peritoneal hemorrhage may give some symptoms and signs similar to those of rupture or perforation of the stomach, appendix or other abdominal viscera.

Having decided to operate, two pathways are open to you. You can go in through the vaginal wall; you can go in through the abdominal wall. In some difficult cases you may have to use both the abdominal and the vaginal route. We recommend the vaginal route on only one condition, viz.: pelvic abscesses. When your gestation sac has been converted into a pelvic abscess, where suppuration has occurred in an intra-ligamentary fetal cyst, in all intra-ligamentary hæmatoma. The opening of pelvic abscesses is by way of the vagina, a safe and wise surgical procedure. The results are most always very satisfactory.

Under all other conditions, in the absence of a contra indication, we recommend that the abdominal route be employed because it enables you to remedy at the same time co-existing pathological conditions, as hydrosalpinx, obliteration of the abdominal ostium. As for instance in Baudron's case, in which torsion of the pedicle of a right hydrosalpinx co-existed with a ruptured left tubal pregnancy. As in Roberts' case in which a teratoma of the left tube co-existed with a right tubal gestation sac. (2) It enables you to secure complete and careful hemostasis. (3) It enables you to better judge the extent of damage, to make a more direct examination and thereby make a more accurate diagnosis. (4) Allows you to make a more conservative ablation of organs. (5) To better and more completely remove the fetal sac and its contents. The separated ovum may ascend in the abdominal cavity, and it may be very difficult to find and remove it by the vaginal route. (6) In case of an incorrect diagnosis, you can by an abdominal incision treat those conditions that simulate ectopic gestation. (7) Sight as well as touch is a very useful aid in operating in extra-uterine pregnancy. (8) This is an abdominal condition. The abdominal route is more likely to lead to success than vaginal section. Frequently the ovum is inaccessible by the vaginal route.

The greatest difficulty that we encounter near term, at term, or after term, in operating for ectopic gastation is connected with the removal of the placenta. A slight detachment of the placenta often results in alarming hemorrhage. There is some hemorrhage connected with the separation of adhesions, but the frightful, appaling hemorrhages come from the placental site. They may occur at the time of operation, they may occur after the operation. In ectopic pregnancy, the placental site has no contractile power; there is no maternal muscular mechanism to stop bleeding, when the placenta is divided or separated. The maximal danger exists when the fetus has been dead for some time, we can, without fear of dangerous hemorrhage, often, remove the placenta, the vessels of which are retracted or obliterated. It would be more correct to say at times, instead of often. After foetal death, the placental functions cease, the vessels of the cord gradually close, as do also those directly concerned in the oxygenating process of the childs blood. The placenta, if so located as to be well developed, undergoes a process of calcification, becoming more solid and tough and much less boggy; the vessels which enter it from the mother are only of a number sufficient to keep the tissues from decomposition.

The relation of the placenta to the source of its main blood supply, the extent of its attachment to the intestines, to the omentum, the mesemtery, as well as the dfficulties encountered through inflammatory adhesions of the sac wall to the surrouuding organs, render the problem of removing the ecpotic mass one possible of solution, for each individual case, only at the time of operation.

The placenta may be implanted upon the uterus, upon the visceral or pariental peritoneum, upon the omentum, upon the intestines or upon other intra-abdominal contents. It is fed by a very large number of vessels, the base being a surface, and not a pedicle.

To avoid repetition, we will before beginning a description of the technique of operation at the various periods of ectopic gestation, make the following statements:

1. In all abdominal and vaginal operations, plastic work being excepted, we make use of well-fitted gloves, sterilized by heat.

2. Immediately before the patient is brought to the operating table, she is catheterized. Voluntary voiding of the bladder is not catheterization.

3. We do not open the abdomen by a median incision. Our incision is to one or the other side of the median line. We are influenced in our selection of the side by the vaginal findings. By making use of an incision to one side of the median line, we think we can obtain a firmer cicatrix. The blood-supply in the linea alba is scant.

4. In all operations of extra-uterine gestation, the opposite tube and ovary should be carefully examined. Extra-uterine pregnancy has recurred. We make this examination; (a) to determine the presence or absence of a former or a co-existing pregnancy of the opposite tube or ovary. (b)

To ascertain the presence or absence of co-existing disease of the uterine anexae.

5. Never make a needless sacrifice of tissues or organs. in the absence of a positive indication, such as a highly contracted pelvis, preventing the birth of a living child, etc., never remove the unaffected tube or ovary. As most extra-uterine pregnancies are tubal, early operation will permit the preservation of the ovary. We think that recurrent extra-uterine pregnancy is too infrequent to justifiy the removal of the unaffected tube or ovary. There are many cases reported of normal uterine pregnancy taking place in the interval between the occurrence of two extra-uterine pregnancies.

6. The main difficulty in early and late operations is hemmorhage. The ideal treatment for hemorrhage incident to operation undertaken for the removal of ecopic gastation sac is prophylaxis. Therefore do not provoke uncontrollable hemorrhages. Proceed only after having well sized up the situation. Hemorrhage must be controlled by ligitation or by compression of the bleeding points. A normal salt solution must not be given either intravenously, subcutaneously or per rectum before the bleeding points have been controlled or secured. Once the bleeding points have been controlled, its use is of signal benefit. It increases the volume of circulating fluid. Before the ligation or compression of bleeding-points has been affected, normal salt solution, by whatever channel it may be given, increases the blood pressure, and is very liable to cause a recurrance of the hemorrhage, through the dislodgment of the internal thrombi. Do not close up the abdomen until you are satisfied that your haemostasis is thorough. These hemorrhages are most profuse if the fetus is alive at the time of operation. The following reasons are given to explain these severe hemorrhages:

(a) The condition of the placenta, which is still functually active up to the moment of separating the living fetus from it.

(b) The abnormal characteristics of the placenta itself.

(c) The special and ectopic position of the placenta in each individual case.

(d) The vascularity of the cyst-wall.

(e) The non-contractile basis upon which the placenta is located.

7. If possible avoid leaving denuded peritoneal surfaces. Denuded surfaces are possible avenues of infection.

8. In attempting to remove the fetal sac and its contents, be careful, lest these efforts inflict much damage upon contiguous organs. Repair such damage before closing up the abdominal cavity.

9. In the absence of indication, we do not drain. Uncomplicated cases do not need draining. (Bovee.)

The first condition the treatment of which we will consider is that of early unruptured ecpotic pregnancy. In this case, there are usually no adhesions. If adhesions be present, they are separated, as in all other intra-abdominal surgical interventions, with great care and by the same methods. We will, in these cases as in all others, observe all the precautions mentioned in the proceeding paragraphs concerning treatment. The incision is carried through the different layers of the abdominal wall into the peritoneal cavity, making our incision about three inches in length. The incision is slightly to one side of the median line. It is usually an infraumbilical incision. After the patient has been gradually placed in the Trendelenburg position, the intestines and the general peritoneal cavity are walled off by compresses of gauze. The first step is to locate the uterus. The uterus is a body so large, and so firm, and so different from everything that is felt in the peritoneal cavity, that there is little difficulty in its identification by touch.

Using the fundus of the uterus as a guide and proceeding to the right and to the left, examine both tubes and both ovaries. Ecpotic pregnancy is located with about as equal frequency on one side as on the other. Separate the gestation-sac from any adhesions, if such exist. Then remove the gestation-sac (which is usually tubular), as a whole if possible, by typical resection of the Fallopian tube involved. Suture the folds of the broad ligament together; leave no denuded peritoneal surfaces. Close up the peritoneal cavity. Post-operative treatment is that of uncomplicated laparotomy. If the pregnancy be ovarian in type, and be early and unruptured, do a typical ovariotomy. Accuracy and rapidity in operating is as essential in these cases as in any other intra-abdominal work.

If the gestation-sac is ruptured and hemorrhage has occurred or is occurring, after opening the abdominal cavity put the patient in the Trendelenburg position. Wall off the general peritoneal cavity by gauze compresses. Again, immediately locate the fundus of the uterus. Determine on which side is the ruptured gestation-sac. Seize the uterus with a double tenaculum, thereby locating and keeping in view the most important land-mark. When you have determined on which side the rupture is (it is usually tubal,) apply a clamp at the uterine end of the tube. This will stop all further hemorrhage from the ovarian artery of that side. Apply another clamp immediately below the tube, compressing the folds of the broad ligament, but not injuring the ovary. Then remove the affected tube and the gestation-sac. Ligate all bleeding points, suture the folds of the broad ligament and the tubal surface of the uterine stump. Remove as expeditiously as you can the easily removed blood, and blood-clots contained in the peritional and pelvic cavities. Remove the embryo if it can be found without prolonged search. Let there be no needless exposure, no needless traumatizing of the intestines. Undue exposure, undue handling of the intestines, intensifies operative shock, and may be followed by aperistaltic form of ileus. Post-operative treatment is that of acute internal hemorrhage for which a laparotomy has been performed. Use normal saline solution secundum artem.

We will close this article by considering the treatment of these cases of extra uterine pregnancy that are near term, at term, or after term. The most dangerous conditions, from the maternal standpoint, are those in which the fetus is alive, the hemorrhage, then, may be fa'al. In these alarming cases of hemorrhage, some authors have suggested that the abdominal aorta be compressed. If the placenta be attached to the line of incision, the hemorrhage will be profuse, but can be stopped by firm compression. In those cases in which the foetus is alive, we have two things to accomplish, and they must be accomplished with the preservation of the mother's life. The preservation of the mother's life must ever be our thought. The first thing to accomplish is the removal of the living child. The last and most important is the removal of the ovum, that is, the placenta, membranes, etc. We shall not often be called to operate in cases in which a living child is present. For a physician knowingly to abstain from operating in a case of extra-uterine pregnancy before it reaches term is, to say the least, injudicious. The teaching will always be to terminate these pregnancies early, and before the development of the ovum is much advanced. Delay in operating is hazardous, and exposes the mother to the many dangers previously cited.

Remove the fetus without disturbing the placenta. If the fetus is alive, the first thing to do after having opened the abdominal cavity and protected the peritoneal cavity by compresses from the outflow of amniotic fluid, is to remove the fetus, the umbilical cord having been ligated as in a normal pregnancy. Have the amniotic fluid escape externally as much as possible. Upon the maternal end of the umbilical cord a clamp is placed, the umbilical cord being cut either between the ligature and the clamp or between two clamps. If at birth the fetus is in a condition of asphyxia neanatorum, employ the usual methods of resuscitation. Fetuses developing in extra-uterine sacs are fetuses that have developed under abnormal conditions of existence. These children will need a good deal of care during the early periods of life.

Removal of the sac is affected as stated later. If the fetus has reached term and is dead, there is some difference of opinion as to which operation is the preferable method—the immediate operation or the delayed operation—that is until the fetus has been dead for a month or longer.

There are numerous dangers incident to the policy of expectancy, therefore if the fetus is dead, be that death recent or of some standing, we will after thorough preparation incise the abdominal wall. Exceptionally our incision may carry us into the fœtal sac. In such cases the peritoneal cavity will not be opened. This is liable to occur in some extra-peritoneal or broad ligament pregnancies. In this variety the sac and the placenta are entirely beneath the peritoneum. The latter may have been pushed up, even stripped for a considerable distance from the anterior abdominal wall. We will hastily remove the fetus without disturbing the placenta; ligating the umbilical cord near the placenta. Evacuate the contents of the sac, and then attempt to remove the sac and the placenta together, after having separated them from the surrounding structures to which they may be adherent. Usually, however, our incision carries us into the peritoneal cavity. In this instance the patient is gradually placed in the Trendelenburg posture. The adherent intestines, omentum, and other vesera are separated, if feasible from the sac, by tearing the adhesions apart or cutting them between ligatures. Hemorrhage must be controlled as you proceed. The general peritoneal cavity is protected by gauze compresses, which are numbered and counted, and then incision is carried into the ovum.

Occasionally you may be able to remove the ovum as a whole. I have never seen a case of advanced extra-uterine pregnancy in which this could be done. If the placenta is not safely removable, if the nature of the adhesions of the surrounding organs to the ovum is such that their separation would prove disastrous, content yourself with evacuating the fœtal cyst, resecting a portion of the sac, and suturing the margins of the latter to the abdominal wound. The sac must be packed daily until the placenta has been expelled, and the sac cavity obliterated. If the placenta is to be left behind, it is better that this fact be recognized before it is disturbed and made to bleed.

Now the great difficulty comes in those cases in which the entire ovum cannot be removed, and the great difficulty lies in the removal of the placenta. Another difficulty is due to the presence of dense adhesions of the cyst wall to surrounding tissues and organs, and also to its great vascularity. The following methods have been employed:

1. The fetus, the umbilical cord, and the amniotic fluid have been removed. Everything else has been left in situ and the abdominal wall closed. The placenta is bottled up as it were with no avenue of exit. This is an extremely risky experiment. It has been done, however, with success. In favorable cases the placenta is painlessly and gradually absorbed.

2. The fetus is removed, the amniotic fluid evacuated, the umbilical cord ligated close to its placental insertion, and more or less of the sac resected. The remainder is sutured to the margins of the wound in the abdominal wall. Drainage of the cavity of the sac is employed, and the placenta and sac are left for spontaneous expulsion. This is the most frequently employed procedure. The sac must be reduced to its minimum before exteriorizing it.

3. After the removal of the fetus, umbilical cord, and amniotic fluid, the placenta is removed in part—so much of it as is easily and safely separated—and the remainder is left to spontaneous absorption.

4. After removing the fetus, the placenta is left in situ. Then after the expiration of a certain time, the placenta is shelled out, when it is hoped that its blood-supply has been spontaneously cut off.

5. The ovum is removed in its entirety at one operation. Ideal measure, if feasible. It should be attempted in all cases in which the enucleability of the entire ovum appears possible.

6. The placenta and gestation-sac are removed at once, likewise the neighboring organs, the uterus and overies providing the hemorrhage cannot otherwise be arrested. This is the method that has been emplyed in those numerous cases that have called for supra or total hysterectomy. In these cases, arrest of the bleeding could not be obtained in any other way.

7. Vineberg, thinking that the mortality has increased

sixfold by leaving the placenta in situ, bottled in as it were, with no avenue of exit, proceeded in a difficult case as follows: He first ligated the vessels on the free side—the uterine and ovarian vessels, then cut the uterus across, at the level of the os-internum, without making any attempt to separate it from the mass to which it was intimately adherent (placenta), and then ligated the uterine artery on the involved side, finishing by removing the uterus and the ectopic mass, thus performing what may be called partial hysterectomy. His patient recovered.

8. Preliminary ligature of the uterine and ovarian arteries of the side from which the placenta received its blood-supply followed by the removal of the placenta. Martin reported remarkable control of alarming hemorrhages after tying the uterine and ovarian arteries on the affected side. Though accessory vessels from the omentum, intestines, or abdominal wall may contribute to the blood-supply of the placenta, nevertheless the main blood-supply of the placenta of the ectopic sac is from the enlarged branches of the uterine and ovarian arteries of affected side.

There is no disputing the fact that the foetal sac and placenta should be removed completely if the procedure be consistent with the safety of the mother. The complete ablation of the ovum is theoretically the only perfect operation. It does away with the subsequent dressing of the case; it does away with the slow and tedious expulsion of the placenta, with the dangers of sepsis that attend this slow elimination of the placenta. It markedly shortens the period of convalescence. It is less liable to be followed by post-operative hernia.

Some of the indications for Sanmetto are: Vesical irritation and atony; enuresis due to atony; incontinence of urine in children due to a weak bladder; dribbling of the urine in the aged, not due to paralysis or growth; urine expelled upon exertion, as coughing; cystitis; catarrhal discharges from bladder or genitalia of male or female; seminal emissions; prostatitis, enlarged prostrate and presenility.

AN EXTRACT FROM THE PRESIDENTIAL ADDRESS OF DR. A. M. CORWIN AT THE OPENING MEETING OF THE WEST SIDE BRANCH OF THE CHICAGO MEDICAL SOCIETY, OCT. 17, 1907.

A word concerning our relation to the Medical Library. Some one has aptly said that the real knowledge of art and science of medicine is post graduate. The medical college seeks merely to lay our foundations broad and deep and give us largeness of vision, embracing the principles of our practice. It can do little more and it fulfills its mission if it does this well.

Hospitals and private practice concentrate our attention and gives us firmer grasp upon detail and technique.

Medical societies and experience in teaching enforce the need of literary research and the value of topical study. But the real opportunity for this comes, not in the reading of a few journals and dipping into a text book or two to keep abreast of the times; it comes only with the coming of the medical library, whether this be housed splendidly under one roof or distributed among the homes of many doctors whose co-operation makes possible a central bureau of catalogues and index. A century ago, according to Jacobi, there were but three medical journals published in this country. Today the library of the New York Academy of Medicine takes to keep on file some 1200 journals. How many doctors have either means to get or the space to shelve more than a few of these? Why, even the accumulation of the journal of the American Medical Association would soon elbow us into the hall and out of doors.

The invaluable complete files of our leading, long time established publications are becoming each year more difficult to obtain even by the wealthy libraries.

What folly for the average physician to attempt to build up an extensive library; and what an inaccessible lumber pile it would soon become without an expensive and thorough index carefully kept.

Yet the humblest of us with access to a repository of ten, fifty or one hundred thousand volumes is practically owner of every book of them without the expense and bother of their keep. A modest request on a scrap of crumpled paper brings to his hand the wisdom of the ages. And neither time nor distance nor the gates of death are sufficient barriers against the coming of those who have made the record of their thoughts immortal.

The transfer of the medical department of the Newbery to the John Crerar Library in the Field building with its 41,000 books and 389 current journals is a godsend to those of us who office down town. And yet do you know, that of the 3,000 physicians in Chicago only twenty-eight to thirty, most of these the same individuals, several of whom are collaborators, are in daily attendance? A scant one per cent if you please. On the other hand, of the total 2,000,000 population of the city, something like 10,000 patronize the Chicago Public library every day. Approximately one-half of one per cent. And we are avowedly a learned profession. Shame on us, the proportion should be many fold greater in our favor.

Out in Los Angeles, a city of 260,000, the other day they dedicated a library building worth $35,000, containing a nucleus of 500 volumes. This is kept running by subscriptions of from one to twenty-five dollars a year, paid willingly by the local profession and their friends, and they consider themselves fortunate.

But here are we, with two libraries at our centre, each of which is more than twice the size of that. The Quine library in P. and S. having over 12,000 volumes and a hundred of the leading medical journals. The library at Rush Medical College is about the same size, and yet hardly a corporal's guard of us has taken the trouble to know it or avail ourselves of these two splendid universities of post-graduate work, both of which are as free to us as air.

Gentlemen, if we are to forge ahead and hold our place in the first ranks we must make a better use of these means of higher education at our very doors. Each of you is a committee of one with full power to see that this society and one or all of these libraries are upon more than speaking acquaintance.

Dr. Osler has finely said, as he has said so many things, "books have been my delight these thirty years, and from them I have received incalculable profit. To study the phenomena of disease without books is to sail the uncharted sea, while to study books without patients is not to go to sea at all." In other words, to follow either without the other is to find ourselves very much at sea.

"LIMERICKS"

A kidney remarkably light
Said "I guess I'm a floater all right;"
But when it had floated
A surgeon quite noted
Tacked it back into place good and tight.

A gall-bladder puffed up with bile
To it's common duct said with a smile
"Do you think I'm a trust?
Open up or I'll bust,
And the stuff in the gut will all 'spile.'"

A diaphragm tired of work
Said "This pumping I guess I can shirk,"
But when it stood still
An atropine pill
Set it going again with a jerk.

An opsonic index marked plus,
Was found filled with ichorous pus.
It was cut out and tied
And some more things beside
By the surgeon without any fuss.

A. H. Southwick.

—*In The American Journal of Clinical Medicine.*

THE PLEXUS.

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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Send contributions to A. R. Johnstone, M. D., Editor, 4147 Lake Ave., Chicago.

THE AMERICAN MEDICAL COLLEGES.

Fewer medical schools and better ones and all under the control of the state or nation, is the demand of the council on education in its report to the American Medical Association.

This council on education was appointed three years ago. It consists of five men: Prof. W. T. Councilman of Harvard, Prof. C. H. Frazier of the University of Pennsylvania, Prof. Victor C. Vaughan of Michigan, Prof. J. A. Witherspoon of the Vanderbilt University, and Prof. A. D. Bevan of Rush Medical College. These men have been studying this question for the last three years. During the last year members of this council made a personal inspection of the medical schools of the United States in order to determine the existing conditions of medical education in this country.

EVERY MEDICAL SCHOOL VISITED.

There are 160 medical colleges in the United States, or more than in all of Europe combined. After personal visits to every American college the council reports that only about 50 per cent are sufficiently well equipped to teach modern medicine. About 30 per cent are doing poor work and need to make great improvements in their facilities and character of instruction to bring them to an acceptable standard, and about 20 per cent have no claim to recognition whatever.

It was clearly shown by this inspection that many medical schools are conducted solely for the profit of their faculties and such are a menace to the community and the profession.

NIGHT SCHOOLS QUESTIONABLE.

There are four night shools teaching medicine in the United States, three in Chicago and one in Philadelphia. It is evident that modern medicine, which requires four, five, or six years of hard study and continuous work, to which the student must devote the entire day and part of the night, cannot be mastered in the night schools between the hours of 7 and 10 o'clock, especially when the student must devote the rest of the day to some other occupation. Many of the poor schools are conducted as quiz classes for the purpose of preparing the student to pass the state board examination and not with the object of making him a competent parctitioner.

OFFERS A REMEDY.

"How can this unsatisfactory condition of medical education be remedied?" council asks. "Two things are necessary: Proper state control and financial support. It is in the power of the public and the profession to enact and enforce laws which will secure proper standards of medical efficiency. A state without the protection of good medical laws, well enforced, becomes the dumping ground for poorly prepared medical men. The state examining boards are unfortunately in some states merely political machines.

"In this country we need money for medical education. It costs more to educate a student than he can pay in the way of fees. Medical education must secure state aid and private endowment. The public must be taught the present condition and the necessities of modern medicine, and philanthropists must be shown that medicine well deserves the support that is given schools of liberal arts, theology, libraries, etc.

"The public has a right to demand such state control as will insure its protection against ignorance and inefficiency and will secure for it the services of well qualified practitioners when they apply for such services, and the public should insist on the legislation necessary to secure such protection.

PLEA FOR HIGHER STANDARD.

"In the effort to secure higher standards the entire medical profession of Ameaica, without regard to the so-called chools of practice, should unite in one common movement to secure the needed legislation and reforms.

"No attempt should be made by legislation to force the regularly licensed medical attendant on individuals who believe in mental, religious, and other means of healing, except in diseases such as diptheria and smallpox, which are in the control of the state and municipal boards of health, and in which the police power is exercised to protect the entire community and applies equally to all classes."

The council recommends the following standard for a medical education:

1. Four years in the public high schools.
2. A year in physics, chemistry, and biology.
3. Two years in well equipped laboratories studying anatomy, physiology, pathology, and pharmacology.
4. Two years in clinical work in dispensaries and hospitals.
5. A year as interne in a hospital.

SENIOR NOTES.

With a very appropriate speech, one of our Professors applies the degree of "Our Young Friend Philosopher" upon Ziegler.

According to our anaesthetist the last audible words spoken by one of our patients were in regard to "Copeland's Nice Soft Hands." An enviable state of affairs, Copeland.

C. C. H. Clinic—Dr. Davison: What would be the result if I severed the Long Saphenous Vein?

Hayhurst—Varicose Vein.

Davison—You're in the wrong school.

While in "406" one afternoon, the class of '08 stood on the brink of a watery grave, and but for Miss Dart, many a star in the medical world might have been robbed prematurely of a chance to shine. A medal for Miss Dart.

Now that Nussle is in the quiz class, we miss his melodious voice and feel lonesome for his sneeze.

Dr. King has occasion to speak of a "crazy Irishman," and we notice at once a change in Larkins' facial expression.

Mano—Doctor, where do you get that perineal plan?

Cockerel—From New York. Dr. Barrett kindly delays the operation until Tom's thoughts return from the scenes of frenzied finance.

Dr. Ferguson, for the benefit of our fit members, spells "R-u-b-b-e-r." The gentleman, more than ever puzzled as to his wants straightway did as the word is inferred to mean in slang.

"Petite" Dolan, as of old occupies the front seat and endeavors throughout the lecture to stand on his ears and kick the flies off the ceiling.

Make a noise like a sick man and see Armstrong get out his stethoscope.

Moran—Everything concentric is not "Ringworm."

McDermid—Treatment for Gastric Ulcer?

Mikelson—Wash out stomach with Ag. No 3.
McDermid—Well that's a radical treatment.
Mikelson—Well, it's a radical case.
McDermid—To be sure, you're a radical doctor.

Kelly and friends shall never forget that "Halloween Party". But somehow Kelly forgot his glasses.

Roll Call—Geldenberger?
Answer—H-i-y-a-p.

Dr. Eddy tells of sudden death of a two year old infant occasioned by falling suddenly and striking forehead.

Oukon—Intentionally?

Samuels, not Willard E., entertains us between clinics with an extensive history of his stethoscope. Never mind Sam—its got a fine polish anyhow.

We Seniors have, during the past few days, had occasion to feel for our classmate "Doane." Today the glad news of his improvement finds hearty acceptance and awaketh joy within the heart of each Senior.

Keep on Doane we are with you and look forward to your return to our midst.

Historian—Reading history, tells of patient having Nausea, Vomiting, Anorexia, and—

Clack—(Diagnostician) Typhoid!

Senior's will look forward to the appearance of Clack's article "Diagnostic Art via Experience."

Dr. Williamson—What are those spots?
"Rosie"—Typhoid eruption.
Dr. Williamson—No sir! ordinary "Flea Bites." And "Rosie" has had his ghetto experience too.

We understand from competent sources that "George," now of obstetrical fame, spends his evenings with an "Anders," which he will have us understand "is a permanent volume of another's library."

First name please—Tucker—No relative of Osler's is it?

We wondered why that muffled applause when Dr. Williamson mentioned chewing gum in the treatment of Gastric Ulcer. A glance at those back seats told the story.

Dr. Patton—G. M. Junk—Present.
Lund—My name is L-u-n-d!—Here.

Noger announces the fact that the "Radiator Club" is again in session on the first floor. President's office vacant.

Dr. King, to patient—Just point out the gentlemen in the first row with mustaches.

All that "desire a mustache" strain their necks. But alas—the patient's sight was affected. For the sake of the "anxious ones," we hope the blindness prove but transitory.

Marion makes a brave attempt to enter "406" by way of the pit, but once within the doors finds the reception by Miss Dart quite to the point, as she orders him to "Right about face."

Another addition to the "Hutchinson Triad," is that "C. W. Hutchinson Mustache" that Brandon wears?

JUNIOR NOTES.

The editor had, in this issue, expected to announce the approach of the "Junior Prom" shortly before the holidays but has been compelled to refrain from taking such steps on account of a late decision of the class. However, if the Xmas. presents do not exceed the expected sum we *may* still be " in the ring."

We do not pretend to know where Newman received his course in pharmacy but that it comes up to the requirements was fully demonstrated to the satisfaction of the whole class when that gentleman asserted that acute arsenical poisoning often resuted from over-indulgence in Dover's powders.

Gabby, who resided at Dunning during the summer months, now appears in the halls every afternoon in a neat blue uniform with brass buttons. Any one gazing upon the apparel will not wonder at Gabby's pride over his new possession. We understand that the same formerly belonged to an employee of the Metropolitan.

Mc Intyre startled the class by his announcement that the normal temperature of the body no longer registered 98.6 degrees Farenheit but that it ranges between 80 and 90 degrees.

Wolf says, "that very frequently we find Lobar Pneumonia is a complication of Diabetes but it is very rare.

Hammerstrand has a sure cure for Diabetis Mellitus and advises opening the artery and removing the obstruction as in arterial thrombosis. Refer to the journal of the American Medical Association.

We must utilize a little space in giving Miller due credit for his discourse on the "morning sickness" in acute alcoholism.

One of the most evident signs in the pathology of Diabetes Insipidis, according to Quinn is "Dilatition of the uterus.

Tiffin wishes to inquire in the colums of THE PLEXUS as to the proper antidote to carbolic acid.

Stomatitis has been amply defined by one of our new additions as an inflammation of the stomach.

Dr. Phifer—"How would you treat a baby who has acquired rachitis as a result of artificial feeding."

Summerfield—"Why, you would take the mother to a physician."

We would like to inquire where Miss Bandrean got the idea. It certainly is very becoming. Also in regard to that troublesome button, would advise purchasing a larger one or one commonly used on overcoats.

SOPHOMORE NOTES.

The class machinery is running smoothly. Excursions, hunting, fishing, picnics and parties are things of the past. The Sophomore has returned to work with a refreshed mind and body—the fruits of his summer vacation. Now is the time for study. For it is only by an alternate assiduous application to books and pleasure that the maximum result is obtained.

It required several physiological experiments to convince the class that McGarry's heart has returned to normal. However, even this appeal to mother science does not remove all suspicion as long as Mac persists in occupying the seat in the front row.

Quiz Master—"What is a plasteb"
Donahue—"A plaster is—a plaster is—well a plaster consists of two pieces of gauze with some stuff in it."

"Pass him up," has become a popular term and at the same time a term of considerable importance and significance among the Sophomores, as the experience of several gentlemen will testify. In case any one be desirous of experimenting he is advised to apply to W. C. Meacham, the seargent-at-arms.

Mr. Charbonneau discovered by methods yet to be revealed to suffering humanity that the Taenia Echinococcus is the cause of small-pox. This discovery has created much sensation among scientists. However,this is not the only revelation from the research laboratory. Greater results are pending.

Anatomies may differ but it is doubtful whether Joe Cohn found the ischorectal triangle described as located at the opening of the rectum.

If the class room's kinder gloomy,
And the quizzes kinder grim,
If the situation's puzzlin,
An' perplexities keep pressin
Until resort is had to guessin,
Just hold your own as best you may,
A doc you'll be, by gosh, some day.

SCHOOL OF DENTISTRY

DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA, ILL., NOVEMBER 20th, 1907.

A COMPARATIVE STUDY OF THE PHYSIOLOGICAL ACTION OF ANESTHETICS.

By C. M. Paden, M. D., D. D. S., Chicago, Ill.

Continued from August issue.

Eighteen dogs in all were anesthetized with somnoform for experimental purposes. Three of them died before the experiments were ended. The first death was due to the use of an imperfect respiration bottle which we had attached to the trochea. The second death was that of a vicious animal who made such efforts to bite us that we were compelled to tie his month shut. Some time after the administration began, he showed signs of collapse and the administration was stopped with the thought that he would revive as others had done. When we finally began efforts to revive him we found that we had waited too long. A post-mortem revealed that he had become nauseated and choked to death on the vomit.

The third and last dog dies partly as the result of carelessness during one of the last experiment. He collapsed and we tried to revive him by artificial respiration without the use of heart stimulants. The heart continued to beat several minutes after respiration ceased and it is probable that had we used heart stimulant in connection with the respiration, we should have succeeded in restoring him. This case serves as a warning to the writer that when a patient shows signs of collapse both artificial respiration and heart stimulants should be resorted to.

Between seventy-five and one hundred readings were made from the different experiments, but the professors selected the above as typical. So far as they have gone what do they seem to indicate?

First. That somnoform improperly administrated may be unsuccessful or dangerous. Until we completed the inhaler which permitted us to administer it in an intelligent manner we had unsatisfactory anesthesia, and with the defective respiration bottle on the trachea of one dog we asphyxiated him.

Second. That when properly administered somnoform stimulated the pulse and respiration but that the blood pressure does not seem to be much increased. The stimulation shown by the pulse and respiration returns toward normal. At no time does either pulse or respiration take on the shallow, ineffective character which fails to maintain the vital functions.

Third. That we could trace no depressant action by somnoform on the centers govering the pulse and respiration. When subjected to artificial stimulation, they act normally and when the stimulus is removed show great recuperative power.

That in the one case where we were able to induce collapse from deliberately pushing the anesthetic, the respiration failed first and gave time enough for the proper restoratives, had we chosen to employ them.

Fourth. That in other cases we were unable to kill by continuous administration of somnoform until we shut off the air and established a form of asphyxiation.

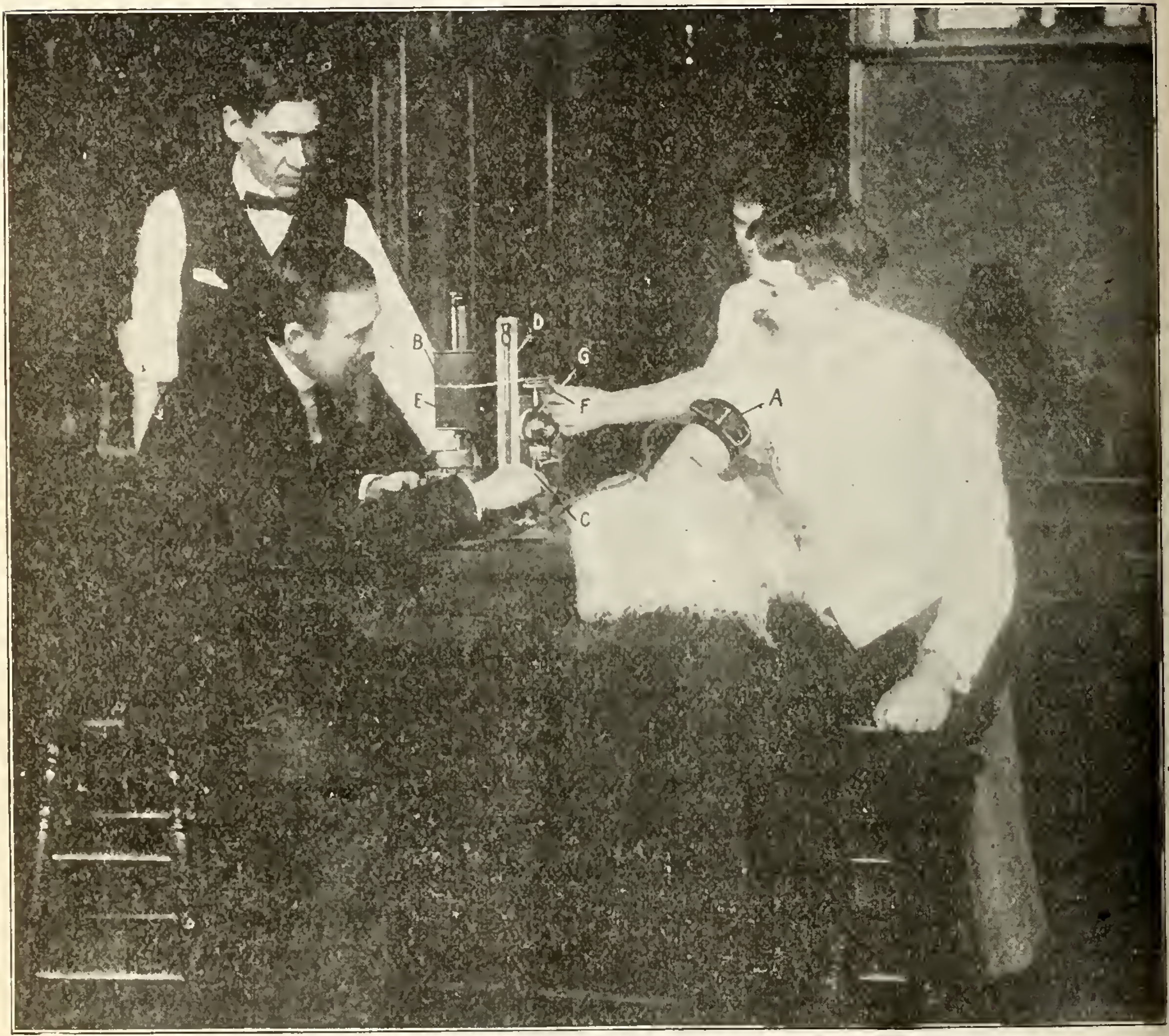
When the animal was anesthetized and the femoral artery cut, we found, in all our experiments, the blood-pressure to be about normal.

Few variations are caused by the continued use of somnoform unless the anesthetic is pushed to the limit. Even when other anesthetics or special nerve stimulation have been used with effect on the blood-pressure, it speadily returns to normal when they are removed and pure somnoform is continued. But the man who is to administer an anesthetic to a human being and thereby assume responsibility for that life, wants something more than experiments on animals, however instructive these may be. He wants to know the details of its action on human being.

Through the genius of Professor Dugeon it has become possible to get at these facts with almost as much exactness as with the animals. The performing of these experiments on people constituted the concluding effects of the course and enlisted the interest and presence of many men widely known in the medical and surgical world.

It will be recalled that the blood pressure in the dog was obtained by cutting the femoral artery and inserting a cannula. This is obviously impracticable with a person, but Dugeon's sphygmograph, a little appliance which rests on the radical artery at the wrist, gives all the details with unfailing exactness. A little metal pad rests on the skin of the wrist over the artery and is held in place by a little movable weight. By varying the position of the weight, the pressure on the artery can be altered at pleasure. The variations of the pulse, as recorded by the metal pad, are traced on a sheet of blackened paper which passes under recording pens in ten seconds; by multiplying the record by six gives a record of a full minute.

Here, then, is the means to the final record, the last and highest test to which an anesthetic can be subjected—its action on the human being. As it is contrary to the rules of the college to administer anesthetics to persons, for experimental purposes, the appliances were removed to the writer's office and in the presence of a notable gathering of physicians and surgeons, these records were made. The illustration No. 12, shows the position of the patient with the instrument in operation.



No 12

[(1) G. G. Zohrlaut, M. D.; (2-3) the writer's assistants; (4) Francis J. Buss, M. D.; (5) Dwight C. Orcutt, M. D.; (6) the writer.]

Illustration No. 13, gives two sphygmograms with the component parts of the tracing lettered. (a) Primary wave; (b) the dicrotic notch; (c) the dicrotic wave, and (d) post-dicrotic wave. The primary wave is the ascending limb of the sphygmogram, due to systole of heart. The dicrotic notch is the depression separating the primary from the

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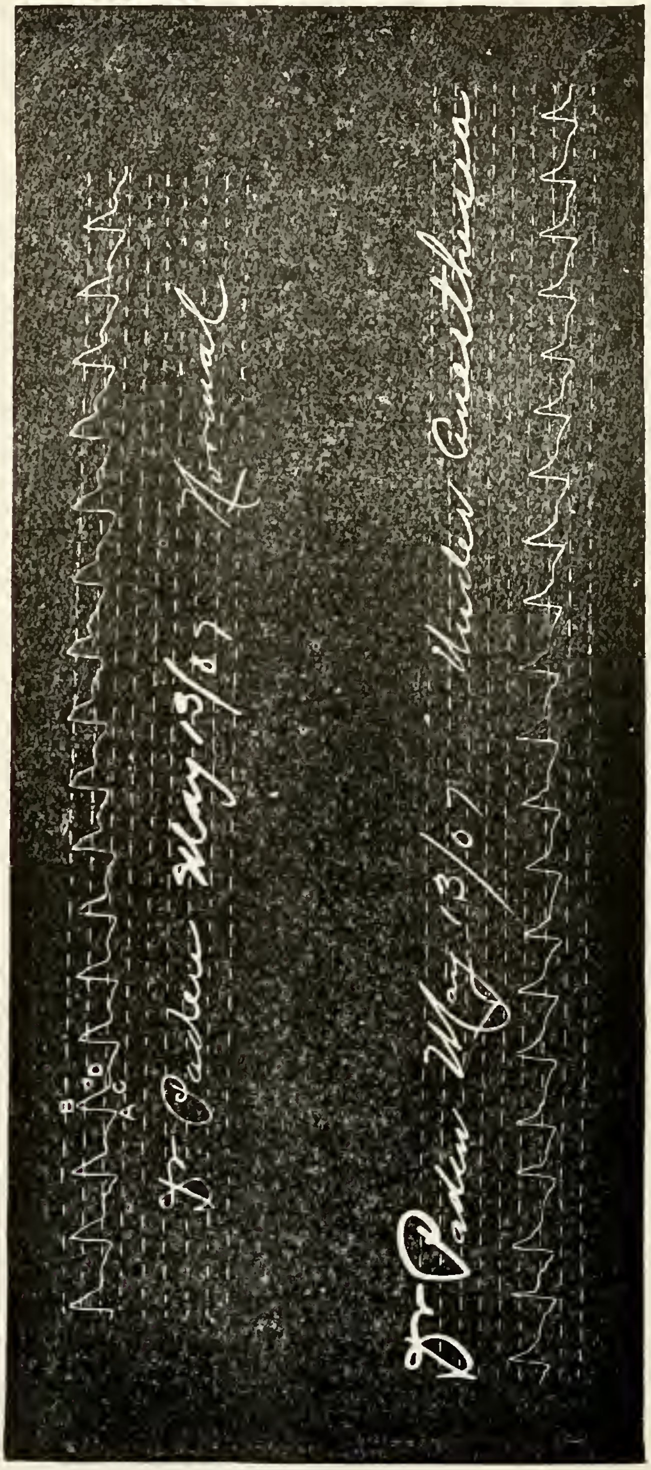
dicrotic wave is an ascent interrupting the descending limb of the sphymogram, due probably, to recoil of blood from semilunar valves. The post-dicrotic wave is the minor in-



NO. 14

terruption in the descending limb, following the dicrotic wave.

The first of these were taken before the anesthesia and the other during anesthesia. Very little change in the character of the wave is noted.

Illustration No. 14, shows the sphygmomanometer in operation and a normal record being taken. (a) Rubber bag applied to brachial artery; (b) tracing on cylinder "E," which is revolved by clockwork; (c) stopcock connected with mercury manometer; (f) tambour space and tambour lever; (g) stiff rubber bulb enclosed in glass bulb.

The sphygmomanometer used in these experiments is the one devised by L. Arlanger, and described in detail in "Johns Hopkins' Hospital Reports," Vol. XII. 1904. Its construction permits the determination of both the maximum and minimum blood-pressures from the graphic record taken from the brachial artery.

The facts concerning the experiments at the college had aroused no slight degree of interest among those who knew of them, and when these final tests were to be made by a number of men of very high standing in medicine and surgery (for whom the writer has administered somnoform) gathered to witness them.

Illustration No. 15 shows the physicians present.

(1) Francis J. Buss, M. D., professor of diseases of ear, nose and throat, College of Medicine and surgery, Chicago. (2) R. H. Brown, M. D., associate clinical professor of the diseases of the ear, nose and throat, College of Physicians and Srgeons, medical department of the University of Illinois, attending physician nose, throat and ear department West Side Free Dispensary. (3) Clark W. Hawley, M. D., professor ophthalmogist Post-Graduate Medical School, opthalmologist and otologist to Provident Hospital. (4) Joy L. Frink, D. D. S. publisher and associate editor AMERICAN DENTAL JOURNAL, member Frink & Young Co. (5) Dwight C. Orcutt, M. D., assistant surgeon Illinois Charity Eye and Ear Infirmary, professor otology, rhinology and laryngology Dearborn Medical College. (6) John A. Cavanaugh, M. D., ex-interne St. Anthony's Hospital, ex-interne West Side Hospital, assistant Chicago Eye, Ear, Nose and Throat Hospital. (7) Noble M. Eberhart, M. D., M. S., professor electro-physics Chicago Post-Graduate Medical School and Hospital, secretary of faculty Chicago College of Medicine and Surgery, attending surgeon Frances Willard Hospital.

8-9) The writer's attendants. (10) Geo. P. Dreyer, A. B., Ph. D.,) professor of physiology College of Physicians and Surgeons, medical department University of Illinois, formerly with Johns Hopkins University. (11) Charles M. Paden. M. D., D. S., professor of anesthesia (formerly oral surgeon) College of Medicine and Surgery, Chicago. (12) Bernard Fantus, M. D., professor of materia medica and therapeutics College of Physicians, and Surgeons, medical department University of Illinois. (13) S. Lee Gabby of the College of Physicians and Surgeons, medical department University of Illinois.

The writer decided to be the patient, as he wanted to know the exact feeling experienced by the patient under prolonged somnoform anesthesia. His assistants were selected to give the anesthetic, as they were thoroughly familiar with its administration, having assisted the writer in all his operations. He had administered it hundreds of times without an alarming symptom, had seen the fear and nervousness yield place to peace, the tense muscles relax in sleep and the most painful operations performed without a quiver. This much his eyes told him, but of what went on in the hidden brain where the centres like monitors watch over the action of heart, blood vessels and lungs, he could only gather clinical evidence. But this test was to be much finer and more exact. Any irritation of the bronchial tubes which would lead to a spasm as in chocking or coughing; any depressant effect on the heart muscle or the cardiac centres in the brain; any action on the basso-motor centres which affect the calibre of the vessels would be instantly and clearly shown by the needles tracing on the blackened paper. Here we learn past all question, whether somnoform is a depressant on any portion of the circulatory apparatus, a question of the greatest importance as to the safety of the anesthetic and the propabilities of successful resuscitation of patients.

As a basis for comparison a sphygmogram was made before the anesthetic was administered and showed the systolic pressure (the pressure during the contraction of the left ventricle) to be 170 and the diastolic pressure (that during the time the left ventricle is expanded) at 135. At the end of five minutes under anesthesia, a second sphygmogram

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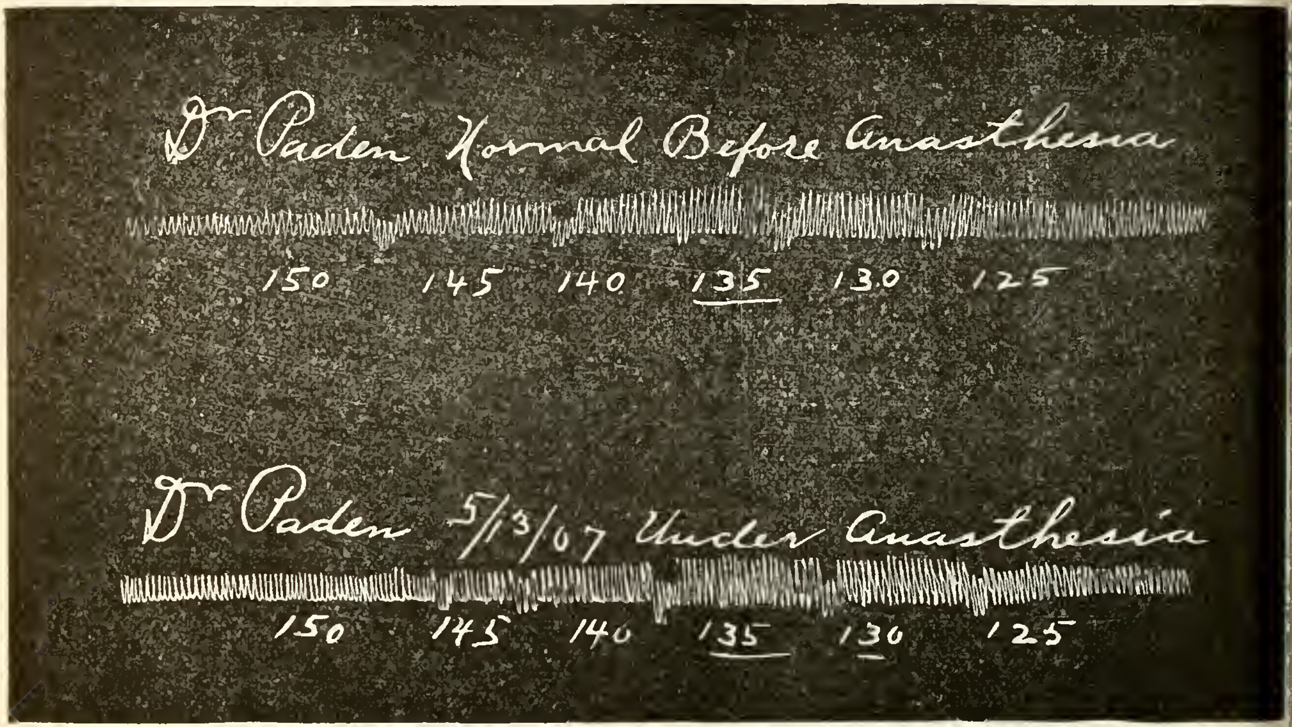
was taken and showed systolic pressure 165 and diastolic pressure varying from 130 to 135.


Dr Paden Normal Before Anasthesia
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Dr Paden 5/13/07 Under Anasthesia
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NO. 16

Illustration No. 16, shows the sphygmograms. All were surprised at the very slight departure from the normal record. Here are the whole lines of activities from the centres in the medilla to an artery in an extremity exposed to the action of a general anesthetic, without a sign of depression which was of the slightest consequence. During the anesthetic Dr. Fantus reported on the pulse rate and Dr. R. H. Brown on the respiration. Here are the reports.

Time.	Respiration.	Pulse rate	
3:06	22	92	
:08	22	104	Anesthesia started.
:09	19	116	Corneal reflex abolished.
:09½	..	100	Corneal reflex abolished.
:15	12	...	Anesthesia stopped.
:16	..	92	
:20	..	92	

No after effects.

It will be seen that beginning with the administration of the anesthetic the heart's action is stimulated for a period of one and a half minutes. It then returns to normal and remains so during the seven minutes of continuous administration. The breathing decreases in rapidity and gains in depth so that when the corneal reflex was abolished it is slow, tranquil and deep. It will be noted that administration was continuous for a period of seven minutes, long enough for a severe surgical operation and longer than would probably be required for any dental operation.

At a recent clinic the writer anesthetized thirty-four patients in the presence of physicians, who kept records of the heart action and signed reports which the writer has. These patients were chosen at random. They ranged in age from 11 to 76 years, and through all the scale of good, bad and indifferent physical conditions. Here are the records as to heart action, the point on which we are now dwelling particularly:

Name—	Age.	Pulse before.	Pulse during.	Pulse after.
Mr. T. C. D	37	76	78	76
Mr. P. P	32	66	69	66
Dr. J. D. A	57	100	112	98
Mrs. S. P. V	76	80	82	81
Mrs. J. R	35	90	104	90
Mrs. E. S	68	76	90	79
Mr. W. D	21	80	90	80
Mr. G. E	21	76	86	77
Mr. G. M. H	20	76	80	..
Mrs. A. S	33	72	76	72
Mr. F. R	12	88	120	96
Miss B. W	50	76	108	100
Mr. M. R	47	80	96	88
Dr. E. G	31	100	120	100
Mr. Y. P. V	24	94	100	96
Mr. R. L. W	23	88	92	90
Dr. J. H. V	30	70	74	70
Dr. C. O. P	33	86	95	86
Dr. J. J. H	23	87	94	88
Mrs. L. V	38	88	99	89
Mrs. M. L	42	90	98	90
Mrs. L. A	44	95	110	95

Dr. F. B.	26	78	100	89
Mr. C. O. W.	44	92	100	96
Mrs. S. J.	36	98	120	90
Mrs. E. W. F.	38	104	124	104
Eva S.	11	80	92	92
Mrs. E. S.	21	88	99	88
Mrs. R. R.	32	100	116	100
Mr. W. M.	26	80	100	86
Mrs. J. W. C.	63	88	96	90
Mr. T. G.	33	82	99	82
Mr. C. B. C.	45	90	107	90
Mrs. S. A. B	56	80	82	80

The writer extracted from one to fifteen teeth for each patient. Each of these experiments was signed separately by the two physicians in attendance, and only one patient was reported as feeling slightly nauseated, which bears out the writer's experiments at about 3 per cent of his patients become nauseated.

Dr. Rolland states in his experiments about 1 per cent of his patients experience nausea.

Some months ago the writer received a letter from Dr. W. Orr Gray. of Melbourne, Australia, also a reprint of one of his articles from the Australian Journal of Dentistry, February 28, 1906, entitled "Somnoform, Its Efficacy and Safety," in which he cites 3,900 personal cases with about 3 per cent of nausea. (This personal letter will be found in the August, 1907, No. page, 498, of The American Dental Journal. The reprint will appear later in the Journal. Thanks to Dr. W. Orr Gray for his valuable information.

The writer thinks that he would be safe in saying after one has had quite a little experience and has become familiar with the administration of the anesthetic that an average of 3 per cent of his patients will experience the feeling of nausea.

SUMMARY.

What are the conclusions to be drawn from these series of experiments? First, That somnoform is not, under normal conditions, a depressant. We have seen that the pulse and respiration are at first stimulated and then remain about normal unless anesthesia is pushed to the limit.

There have been abundant proofs of this on both animals and patients. We have also seen that the blood-pressure in animals shows but little change during long periods of anesthesia unless outside interferrence occurs and that it then quickly returns to normal. As related in the account of the last experiment, the blood-pressure in man after five minutes of complete anesthesia shows remarkably little change. These results are of the greatest importance to the anesthetist. They indicate first that the respiratory centres are not depressed and that normal quantities of air are continuously inspired. When considered in connection with the rapid elimination of somnoform, this means that few patients will show signs of collapse, that it will not ordinarily be far reaching and that should resuscitation become necessary, the condition of the respiratory centres is such as to greatly assist.

The pulse and blood-pressure records are not less important. They indicate an excellent tonic condition of the centre even after long anesthesia and equally good tonic condition of the heart and blood vessels. Just as you cannot have good water pressure unless both the pumps and pipes are in good condition, so you cannot have normal blood-pressure unless this centre govering the activity of the heart is in good condition and the vaso-motor centres maintain the blood vessel in normal calibre.

A proper condition of these centres insure that the oxygen inspired by the lungs shall be promptly distributed to the nerve centres and tissues and become the most important of all supporting and resuscitation forces.

In view of these results the writer feels that somnoform belongs in the same class as ether so far as its action on the blood-pressure goes. It certainly does not belong in the class with chloroform, which is a heart depressant. Its standing as regards to safety must be taken from the history of its administrations. The writer is of the opinion that as regards safety it must be classed with nitrous oxide. The writer has been able to learn of four authentic deaths, two in this country and two in others. The writer does not know how many administrations there have been, but he has records of 72,641 by large users, with the most satisfactory results and thinks there must have been more than 500,000 since the International Dental Congress at St. Louis, Mo., 1904. Each of the anesthetists reports complete satisfaction (with the exception of one) and many added words of praise. He also chanced to meet one of the members of the faculty of the Dental Department, University Illinois, who informed him that somnoform had been administered 1,200 times in their clinics with excellent results. It therefore seems necessary to conclude that somnoform should be classed with nitrous oxide as to safety, and the records class it as much safer than ethyl chloride and ethyl bromide, from each of which a considerable list of fatalities are reported.

As regards convenience, somnoform stands alone in the ease of administration, speed with which anesthesia is induced, the duration of anesthesia and speed and completeness of recovery.

It was the writer's intention to carry this series of experiments on and include nitrous oxide at this term of the college year. He has made a careful study of the literature on the subject to familiarize himself with what has already been done; but the unexpected delays to which we have been subjected and the approach of the end of the college term, made it impracticable at this time. The best he can do now is to present a brief summary of his information of that subject.

Where nitryus oxide is indicated it is generally conceded to be a very safe anesthetic. Dr. J. M. Patton, "Anesthesia and Anesthetics," 1905, says: "There are no special dangers connected with the administration of nitrous oxide and oxygen. So far as this method has been employed it seems to be remarkably free from danger. Hewett in his search through Medical and Dental Journals, covering a period of 40 years, found records of only thirty deaths, several of which were not due to the anesthetic directly. In infants and young children, nitrous oxide is an unsatisfactory and dangerous anesthetic, because of the liability of asphyxia.

Combined with oxygen the dangers are less. Nitrous oxide is not as safe in elderly people as in middle life, and in senile subjects should be given with oxygen. The pulse ranges from 110 to 160 per minute.

"Ether is comparatively free from danger in healthy subjects. Ether is more dangerous administered in winter than summer, and is slightly more dangerous in females than in males. Ether is less dangerous in infants than chloroform and its period of greatest danger is from 50 to 70 years of age. Death rate under ether is 1-14987 (Jullard, of Geneva, 1891). Ether causes a rise in blood-pressure in the first and second stages owing to excitement and muscular exertion. In full anesthesia the pressure falls near to normal.

"Chloroform is safer administered in warm climates than in cold climates, and is most dangerous during infancy and after 30 years of age, and least dangerous from 10 to 30 years. Chloroform is said to be about twice as dangerous in males as females. Death rate under chloroform is 1-3258 (Jullard, of Geneva, 1891). Chloroform causes diminished arterial tension from the start. Statistics show us that chloroform and ether are not indicated for operation in the dental chair. The writer in his search through the dental journals, found a record of thirty deaths from chloroform, in this country from 1904-'06. Up to the present time ether has not been used to any great extent in the dental office. All dental operations that cannot be performed under nitrous axide or somnoform should be taken to the hospital, operation performed on the operating table, in a recumbent position, and the anesthetic administered by an experienced anesthetist.

"A. C. E. mixture is composed of one part alcohol, two parts of chloroform, and three parts of ether. When enhaled the odor of the mixture is not unpleasant. The effects are more similar to those of chloroform than of ether, though partaking of the peculiarities of both. This mixture probably should occupy an intermediate position with ether and chloroform as regards safety. There are special conditions in which it may be the agent of choice."

E. Overton (Studien uber die Narkose, Jena, 1901) compares the concentration necessary for anesthesia by the following anesthetics in this manner.

Ether	1 : 400	Ethyl Bromide	1 :3500
Ethyl Chloride	1 :3500	Chloroform	1 :6000

On mixtures of anesthetics he remarks: "The narcotic action of two anesthetics adds itself quite accurately; so that by a combination of two different anesthetics with less of the side effects of each may be obtained."

He believes that the anesthetic of the future will be a suitable combination of several different narcotics.

G. A. H. Barton, of London, in the "Guide to the Administration of Ethyl Chloride," says: "For many years ethyl chloride has been used for the production of local anesthesia by freezing, and it was while using it in this way in 1895 and 1896 that Carloon and Theising, two foreign dentists, independantly observed general anesthetic effects. Lothiesen appears to have been the first surgeon to give it a trial in 1896."

Extracts from article in "British Dental Journal," March 15, 1906, by F. C. Eve (Hull), M. B. B. S. Constab., entitled, "Ethyl Chloride." "The writer knows of no less than eighteen deaths from ethyl chloride in the literature, nearly half being dental cases, and two being in children."

Somnoform was discovered in 1895, by Rolland, of Bordeaux, France, and has been used quiet extensively since that time, with a death list of only four. If there have been eighteen deaths from ethyl chloride during the past ten years and only four under somnoform, does it not show that somnoform is a far safer anesthetic than ethyl chloride?

I was about to conclude my article without giving the mortality of nitrous oxide gas, for the reason that the writers on the subject give it from 1 in 25,000 to 1 in 250,000. But just as the article was ready to go to the JOURNAL, a communication was received from Dr. Frederick B. Moorehead, professor of anesthesia Rush Medical College, Chicago, also professor of Oral Surgery Dental department of Illinois, He has given thousands of administrations and his experience with the anesthetic, the writer deems second to none in this country. By permission of the doctor his letter is now inserted below. (The writer is greatly indebted to Dr. Moorehead for his valuable information.)

August 13, 1907.

Dr. C. M. Paden, 72 Madison street, Chicago:

DEAR DOCTOR—I have your letter of August 9, asking for some information of the mortality of nitrous oxide as a general anesthetic.

In carefully searching the literature on the subject, the estimated mortality in this country and in Europe, is about 1 in 150,000 cases. Estimating from my own experience and the experience of some of my friends, who have used the agent very extensively, I would say the rate was a great deal lower; at least 1 in 250,000 or even 1 in 300,000. It is a question whether the cause of death in the cases reported are directly referable to the use of nitrous oxide. Properly administered, I consider the agent absolutely safe —the safest of all general anesthetics

Very truly yours,
F. B. MOOREHEAD.

In summing up these experiments, it is the writer's opinion that in many cases of minor surgery and preliminary anesthesia, somnoform is the anesthetic of choice and should be taught in both medical and dental schools.

The writer is greatly indebted to Dr. Bernard Fantus, Dr. George P. Dreyer, Dr. Lee Gabby, the superintendent of the College of Physicians and Surgeons and all those who rendered any assistance whatever, for the interest and courtesy they have shown and the very kind assistance they have given him.

SCHOOL OF PHARMACY.
OF THE UNIVERSITY OF ILLINOIS.

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THE VALUE OF PHARMACEUTICAL EDUCATION.

In its broad sense, education is the building up and the unfolding of life. It is synonymous with progress. It signifies an increase in power and mentality. It aims to give a clearer view of life's problems and to make their successful solution more certain. It increases the capacity of the individual for usefulness as well as for the enjoyment of pleasures of the highest type.

Though directly concerned with school instruction, true education is by no means confined to the latter. It means more than storing the memory, developing the reasoning faculties and training the powers of observation. It implies a growth and a broadening out of the man, physically, intellectually, morally. Its agencies include the home, the church, the school. It is affected by every factor of environment.

But from a narrower view-point we refer especially to school training when we deal with education. When this training is intended to fit persons for particular sphere in life we speak of it as technical or professional in character. Technical training has been wonderfully developed during a comparatively recent period. The reason is not far to seek. Our age is characterized by feverish activity. The severe competition of modern life demands the best possible preparation to achieve success. The necessity for specialization as an aid to thoroughness is fully recognized.

With the passing of the old-fashioned system of apprenticeship, there has arisen a necessity for technical training which has been felt in many professions, industries and trades and has been met by the establishment of technical schools. Perhaps nowhere has this need been felt more keenly than in pharmacy, where in spite of the amazing increase and development of teaching institutions, the scarcity of trained assistants is today one of the most difficult and urgent problems that confronts the employer.

In pharmacy we have a profession and trade and business which presents so many and such varied aspects that the amount and quality of technical education adopted to it will vary somewhat according to local conditions. For some years the trend of pharmacy toward commercialism has been very marked. This has led some successful pharmacists to deprecate the utility of a scientific training. It was said, and with much truth, that the prescribing of ready-made mixtures by the physicians had become so prevalent as to almost obviate the necessity for pharmaceutical knowledge and skill, with the result that questions concerning the buying and selling of goods and other purely commercial affairs had crowded into the background such considerations as were related to the preparation, testing and dispensing of medicines.

But the pharmacist is now regaining his birthright which he had well-nigh lost and the physician who was blamed for the deterioration of pharmacy is now seen to be the Moses who is to lead us into the promised land of professional attainment and recognition. The physician is awake to the fact that his own lack of knowledge of Materia Medica has unwittingly caused him to put undue credence in the statements of unpharmaceutical, unprofessional and self-seeking manufacturers of proprietary medicines. He now begins to realize that in neglecting the standard preparations of the pharmacopoeia and national formulary he is simply exposing himself and his patient to systematic deception. He is now ready to leave his false gods and to return to the use of medicines of known composition and strength and of approved value.. But is the pharmacist ready and competent to prepare, examine and dispense these official preparations? Unless he makes a vigorous effort now he will fail to realize the full benefit of this advance and reformation in medical practice. Now, and in the near future, more than ever before, will a pharmaceutical education be a most valuable commercial asset, besides being, as it has always been, a source of pride and satisfaction to its possessor.

THE ALUMNI EBERT FUND.

A contribution of ten dollars, has been received from Charles M. Ford, '74, of Denver, Colorado. The total amount in the fund is now $185.00

PROFESSOR HAMBRIGHT DEAD.

George M. Hambright who came to Chicago from Pennsylvania many years ago and purchased the store of the late Albert E. Ebert at Twelfth and State streets, about 1877, died October 2nd at Mercy Hospital, Chicago.

Mr. Hambright was a member of the faculty of the Chicago College of Pharmacy during the early seventies and again from 1881 to 1884, when he resigned from the faculty, sold his drug business and returned to Lancaster, Pa., where he has resided until a few months ago.

For some weeks prior to his death he was engaged with the Whitfield Drug Company of this city. The following resolutions drawn up by the Dean of the faculty of the Chi-College of Pharmacy, now the School of Pharmacy of the University of Illinois, were adopted at the October meeting of the faculty of the school.

Whereas, the announcement of the death of our former co-worker, George M. Hambright, comes as a great shock and surprise to the members of the faculty of the University of Illinois School of Pharmacy who were his colleagues in the days of the early history of the old Chicago College of Pharmacy and who are aware of the unusual interest displayed by him in maintaining and raising the status of professional pharmacy; his true worth as an earnest worker and seeker after truth; his dignified attitude in trying to overcome the commercialism of pharmacy; his ethical sociability; his probity and the profound concern shown by him in the welfare and advancement of the younger element when the spirit of inquiry and earnestness were manifest to him, marked him as one of intelligent seriousness and whose understanding of genius and ability would lead him at times to loose what seemed to be his innate opposition to real sociability, and,

WHEREAS, we learn that he had returned to Chicago owing to the pressure of adverse circumstances, to again enter upon the arduous duties of professional life, be it therefore

Resolved, that we, his companions of years, express sorrow for our friend who so severely felt the oppressive hand of an inexorable nature at a time of life when his pathway should have been smooth and broadened with beautiful emblems, prosperity and success befitting an honest, moral, just and well-spent life.

Further, that we cannot remain passively conscious or insensible to the fact that but few of our old associates now remain,who by their foresight and profound application succeeded in lifting pharmacy from the almost purely mechanical to a broadly scientific level and who so successfully laid the corner stone of the structure that has become the source of inspiration to many others,

Further, that in our sorrow and sympathy we reverently hope that the guiding hand of the past will still continue to lead us in the pathway of true advancement as was his effort.

His work was steadfast, true, noble and unselfish, his desires most humanitarian and his life's labors serve only as a source of encouragement for those who follow, to emulate his efforts.

With profound regret we bid an everlasting farewell to another coadjutor and feelingly inscribe his name on our roll of honor with those of Garrison, Bastin, Martin, Sargent and Ebert.

F. M. GOODMAN, Dean.

PHARMACISTS AND PHYSICIANS AND THE FOOD AND DRUGS ACT.

REPORT OF THE SECRETARY TO THE SECTION ON PHARMACOLOGY AND THERAPEUTICS, AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE, 1907.

By C. S. N. Hallberg, Ph.G., M. D., Chicago.

The past year has been an eventful one for medicine and pharmacy.

The Federal Food and Drugs Act which went into effect January 1, 1907, marked a new era since for the first time in the history of the U. S. definite standards were adopted for drugs, chemicals and medicines through the legal recognition of the U. S. P. and its auxiliary, the N. F. Although the standards of the U. S. P. have been recognized by different departments of the Federal Government for a long time and have been generally accepted by the State Pharmacy Acts and the courts, not until this year may it be said to have secured general recognition throughout the Union. There are two provisions in the Federal Act to which it is desired to direct attention since state legislation modeled upon their identical lines has been attempted and already secured by several states.

First: In that the provision requiring medicines containing alcohol and a number of potent and habit-forming drugs to designate these articles and their quantities does not exempt preparations of the U. S. P., the N. F., and physicians' prescriptions. Since the articles of the U. S. P. and N. F. must conform to the requirements of these standards unless especially excepted and physicians' prescriptions are not often subject to interstate commerce and are of a confidential character as between the physician and his patient, there is no necessity for the label requirement in these three classes of medicines. This has already been generally recognized and in several state-laws passed recently exemptions have been made from these label requirements.

Second: A more serious phase of this question is however presented by the provision, Sec. 7, viz.: that all articles of the U. S. P. and N. F. must conform to the requirements therein unless it is especially declared on the label that they differ. This means practically that any preparation may be made of any strength provided such is stated. For example: Tincture Opium of which the official strength is 10 per cent of Opium or 1.2 per cent morphine may be 5 per cent or only 1 per cent of opium and corresponding morphine strength, if it is only so stated on the label. The result has already been that chemicals below the official requirements as to strength, quality and purity are sold. Thus Magnesium Carbonate is labeled, "for technical purposes." Sublimed Sulphur, "for mechanical uses," etc. Such chemicals for commercial, industrial or technical purposes may, and often do, contain poisonous substances, such as salts of heavy metals, lead, copper, tin and poisonous compounds of arsenic, antimony, etc., which would be entirely excluded if they were offered without this qualification. This label requirement applies only to the original large packages in bulk of these cheaper chemicals, and necessarily are never seen by those who may use them as medicines. In fact, except for interstate commerce, they may not appear on the packages brought by the retail pharmacist, and unless he examines these articles, he may be selling unconsciously impure or adulterated medicines. The law, in this respect, lends a false security which is to say the least, undesirable. Ever since the advent of Pharmacopœias —practically a century—it has been the law, written and unwritten, that when the article is sold under the official title, it must have the official requirements. That it must conform to the tests for identity, purity, quality and strength. In order to make adherence to these standards more acceptable to manufactures, the U. S. P. 8th affords certain limitations as indicated in the purity rubric. It is therefore recommended that in all state legislation, the following modification of the federal law should be insisted on:

1. Exemption from the label requirements of the articles of the U. S. P. and N. F., and physician's prescriptions.

2. Articles of the U. S. P. and N. F. must conform to requirements, although, if feasible or desirable, the N. F. preparations may differ in color or flavor from the N. F. formula product if so stated on the label.

RELATION OF PHARMACISTS TO PHYSICIANS.

The reformation of the Materia Medica and Therapeutics and the work of the Council on Pharmacy and Chemistry have brought prominently to the notice of the medical profession the two legal standards for medicines and consequently, also the pharmacist and incidentally his relation to physicians.

The pharmacist has been in an unfortunate position, somewhat similar to "that between the traditional man in red and the deep blue sea." With ethical proprietary medicines and foreign synthetics on one hand and secret patent medicines on the other, his lot has been anything but a happy one. He now sees an opportunity to again become the compounder at least, if not the manufacturer, of the medicines used by physicians and those who are awake and ambitious, realize that a new era has begun for pharmacy. Unfortunately, there are druggists and pharmacists just as there are doctors and physicians, and to distinguish between these is a difficult and almost hopeless task. However, following the lead of medical men, the better class of pharmacists have organized local societies as branches of the American Pharmaceutical Association and have taken up the work of awakening the pharmacists to the possibilities now being presented to them through the movement of reform now in progress in the medical profession, that some of the causes which have been destructive, alike to pharmacy and medicine, may be modified, if not removed.

The encouragement of the American Medical Association is therefore sought in behalf of the educated pharmacists of this country who, through their national association —the American Pharmaceutical Association—are, like the physicians, working for the elevation of their calling and improvement of their profession and practice.

To facilitate the work of the local branches it is suggested. therefore, that this Section take such action on the following subjects as it may deem appropriate:

The Status of the Prescription.
The Prescribing by Druggists.
The Attitude to Patent Medicines.
The Dispensing by Doctors.

THE PLEXUS

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT OF THE
UNIVERSITY OF ILLINOIS.
CHICAGO.

VOL XIII. BATAVIA, DECEMBER 20th, 1907. NO. 12

THE POCKET CASE.

By Bernard Fantus, M. D.

Having been requested by various members of our graduating classes to suggest to them what agents, medicinal, and otherwise, they should provide themselves with to carry on their rounds of practice, it occurred to me that it might possibly be of advantage to many others were such a list printed in the pages of our College Journal.

A doctor, like a soldier, should always have his ammunition ready. The doctor should always carry with him the most essential remedies, both medical and surgical, needed in emergencies. This can only be accomplished by carrying them in one's pocket. It is very common for young doctors to fit out a hand-bag, as completely as possible, with the intention that it should be their companion in practice, only to find that the thing has become too unwieldy to be carried with comfort, and that they often do not have it when the need is the greatest as, for instance, when they are out for pleasure and are suddenly called upon to attend an emergency. A pocket-case is, therefore, a most essential thing in the outfit of the practitioner.

The most essential is undoubtedly a hypodermic syringe, and a collection of tubules of hypodermic tablets. By a sufficiently extensive and wise selection of hypodermic tablets, a doctor may carry with him "multum in parvo". The all-glass hypodermic syringe with ground-glass piston, e. g. Luer's, I consider the best. Its piston can never get out of order. Always carry two good hypodermic needles with you. Remember that the needle works best, hurts least, when it is sharp. Its sharpness wears off very quickly. Discard the needle as soon as it is the least bit dull. Patients who have hypodermic injections frequently soon learn to appreciate the difference between a sharp and a dull needle. Always keep the needles wired, otherwise they are liable to become stopped up by dirt. Pass alcohol through the needle, or else carefully dry it, before putting in the wire; dampness might cause the wire to rust into place.

The following selection of hypodermic tablets might be suggested. If only six tubes are to be carried:

1. Morphine sulphate, 0.015 Gm., (gr. 1-4)
2. Atropine sulphate, 0.001 Gm., (gr. 1-60)
3. Strychnine sulphate, 0.002 Gm., (gr. 1-30)
4. Apomorphine hydrochloride, 0.006 Gm., (gr. 1-10)
5. Digitalin, 0.0006 Gm., (gr. 1-100)
6. Nitroglycerin, 0.0013 Gm., (gr. 1-50)

If twelve tubes can be carried, the following additions will be of advantage:

7. Hyoscine hydrobromide, 0,0013 Gm., (gr. 1-50)
8. Cocaine hydrochloride, 0.015 Gm., (gr. 1-4)
9. Pilocarpine hydrochloride, 0.010 Gm. (gr. 1-6
10. Caeffeine sodio-benzoate, 0.030 Gm., (gr. 1-2)
11. Adrenalin, 0.001 Gm., (gr. 1-60)
12. Aconitine (crystalized), 0.0003 Gm., (gr. 1-200)

It will be noted that tablets containing rather large doses have generally been selected, as it is easy to obtain a smaller dose by dissolving a tablet and injecting as much of the solution as will represent the desired dose. Combination tablets are hardly of advantage, they occupy valuable space, and, if a combination is wanted, it can as readily be obtained by using as many different tablets as are wanted in the combination.

In cases where it is not desirable or convenient to administer a hypodermic injection, these hypodermic tablets may be given by mouth. There is evidence that, in cases where the patient cannot swallow, prompt action may be obtained by placing a hypodermic tablet underneath the tongue.

Ergot, a most important emergency remedy, which must occasionally be administered hypodermically, is not included in above list for the reason that hypodermic tablets of ergot have not been found satisfactory owing to their hygroscopic properties. The pocket-case, therefore, ought to contain a cork-stoppered or glass-stoppered vial for one of the modern ergot preparation for hypodermic use, e. g. Ergone (P. D. & Co.) or ergotole (S. & D.)*

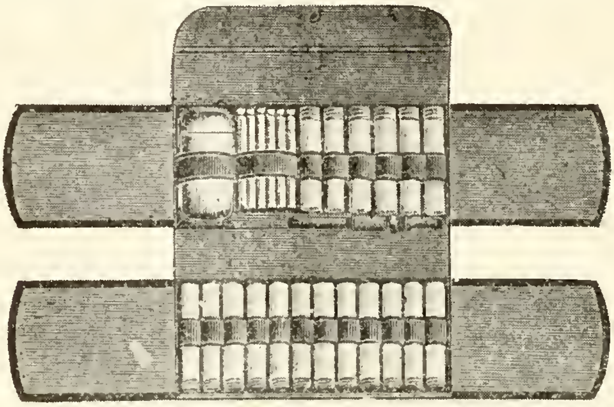
Among the other remedies that cannot be carried in hypodermic form, I have found the following three most useful in form of tablet triturates:

Calomel (with wintergreen), 0.006 Gm. (gr. 1-10)
Compound laxative pill (U. S. P.)
Acetphenetidin, 0.12 Gm. (gr. 2)

Among the surgical emergency remedies a reliable antiseptic undoubtedly occupies first place. The only one that is suitable for the pocket-case is mercuric chloride, which is best carried in form of Bernay's colored tablets. As these contain a highly poisonous dose, it is important to surround them with every possible safeguard against mistake e. g. by affixing "poison" labels to the vial, by putting the vial with the stopper side down, by placing red-colored cotton between the stopper and the tablets, and by chosing an angular tablet rather than a round one.

A stick of silver nitrate, which may be placed in a glass vial or carried in suitable mounting will be found very convenient in the treatment of ulcers and fissures, and wherever else this powerful astringent may be indicated.

This would fill a one row pocket-case (which might be represented by the upper half of the accompanying illustration) with exception of the pocket that such cases are usually provided with for the carrying of powder-papers. Instead of powder-papers, however, we may carry in this pocket a selection of surgical needles and of suture material, e. g. a few srands each of worm gut and of horse-hair, and two or three envelopes of sterilized catgut. We might even add to this a small scalpel, a small probe, and a small, thin forceps.



Such a pocked-case would be exceedingly compact; and, I believe quite well stocked for medical and minor surgical emergencies.

Should the physician practice in a country district where he has to do a good deal of self-dispensing, the two row pocket-case illustrated above would be necessary. For stocking the twelve extra vials, I might suggest the following selection:

1. Aconite, tincture, 0.05 Gm. (mi)
2. Ammonium chloride, 0.06 Gm. (gr. i)
3. Bismuth subnitrate, 0.12 Gm. (gr. ii)
4. Cathartic compound, vegetable, U. S. P.
5. Digitalis, tincture, 0.05 Gm. (mi)
6. Dover's powder, 0.06 Gm. (gr. i)
7. Mercurous iodide, yellow, 0.008 Gm. (gr. 1-8)
8. Morphine sulphate, 0.004 Gm. (gr. 1-16)
9. Resin of podophyllum, 0.004 Gm. (gr. 1-16)
10. Quinine bisulphate. 0.06 Gm. (gr. i)
11. Santonin, 0.03 Gm. (gr. 1-2)
12. Sodium salicylate, 0.06 Gm. (gr. i)

Tablet triturates containing small doses are preferable to those containing large doses, as it is easier for the patient to take several tablets at a time or one at short intervals, than to take fractions of tablets, as he would have to do were the tablets too large.

SYMTOMATIC TOXEMIA FROM LOCAL INFECTION

By Bayard Holmes, M. D., Chicago.

At different times in the history of medicine quite distinct methods of research have been followed. The results have corresponded with the method employed. Cullen, Jenner and Sydenhan brought order into nosology through the method of clinical observation and statistical research. If we compare their contributions with that of any other period they are quite as comprehensive and valuable though perhaps not quite as multiple and exact. The method of Rokitansky and Virchow was that of the post-mortem room, and was rich in details and variety, but hardly productive in life-saving or health-giving suggestions. The later contributions of Pasteur and Wright combine in a remarkable manner the method of the two previous epochs, and promise help to the sick and safety to the well, beyond that of any previous period.

By "a symptomatic toxaemia" I mean a blood-poisoning which is recognized by the condition of the blood and the results of its malnutrition, whether the tonic element is isolated and recognized or not. The various orders of toxines produce quite different conditions in relation to the number of red and white corpuscles, the amount of hemaglobin, the maturity, immaturity or degeneration of the corpuscles themselves, as well as changes in the tissues which the blood is designed to nourish. Even the condition of the walls of the blood vessels themselves, the functions of the kidneys, the liver and the glandular organs are in themselves symptoms of toxæmia. But the great spmptoms are clinical and are the manifestations of disordered physiological functions. These may appear in the cerebral and spinal systems, the circulatory and the respiratory systems, the excretory and ductless glands, or even in the nutrition and growth of any part of the locomotive or protective apparatus. It is probable that a recognition of these conditions gives some hint of the direction in which research may become valuable.

The toxic elements which are produced by parasites are generally looked upon as by-products of their growth and nutrition. This may be the case in many instances but in some, at least, the toxines are of a nature perfectly consistent with the life of the generator and parasite but inconsistent with that of the host.

The toxic nature of the alcoholic delirium is indisputable. This condition can be experimentally produced and studied. It is quite different in *acute* alcoholic poisoning from that of a more *chronic* form. The toxæmia of the chronic condition has long been recognized, and with recovery the symptoms and findings of this toxæmia disappear. Somewhat similar toxæmias result from other poisons, such as morphine, arsenic, paraldehyde, chloral, lead, mercury and alkaloids. They are symptomatically unlike the toxæmias which are of an infectious nature only in the promptness with which most of them disappear on the removal of the cause. Tobacco poisoning generally gives its symptoms in the circulatory apparatus, while lead and belladonna find their greatest expression in the nervous system.

I would call attention especially to the toxæmias which result from the infection of the natural mucous cavities of the body. These are a group of exogenous toxæmias much neglected, and whose early and prompt treatment promise the greatest results to the patient and a field of unusual interest to the clinician.

Through my associations with Dr. Robert H. Babcock I have had thrust upon me a series of patients who presented such cardiac symptoms as led them to come to a heart specialist. The most prominent symptom which they complained of was tachycardia. They have generally had a series of angina-like attacks, and usually complained of disorders of digestion. In practically every instance there has been a hypertrophy and dilatation of the heart, sometimes of great extent. In a few instances murmurs have been present, and in all the blood has shown a toxic condition in the ratio of hemaglobin, the number and character of the leucocytes, and frequently in the condition and character of the excretions. The picture of these manifestations can be best secured by a resume of a few of the cases.

Mr. D., of Decatur, Ill., had palpitation of the heart with stomach trouble which had compelled him to leave his business and try various sorts of cure. He found no relief and only grew weaker and lighter, losing about forty pounds in less than a year. He believed the heart was the site of his trouble and therefore consulted, on the recommendation of a physician, my associate, Dr. Babcock. Dr. Babcock found the patient lightly cachectic or lightly jaundiced. The skin was aged and clammy although the patient was only 46 years old. The lungs presented no abnormality, the heart was more than seven inches in transverse diameter and there was a loud hemic murmur. The pulse rate was constantly above 90, and freqently after light exertion as high as 120. The spleen was not enlarged; the liver was moderately enlarged. and the region of the gall bladder tender under palpation, otherwise the condition of the abdomen was normal. Examination of the blood showed a moderate leucocytosis and a hemaglobin index of 75. The urine contained a moderate amount of indican and was occasionally clouded with albumen. The blood pressure was 140, and the arteries appeared soft. There was no adanopathy.

The history was that of a temperate life with a single protracted illness said to be malarial, but evidently of only three months duration, and showing the constant temperature of asepsis, probably typhoid. Diagnosis of myocarditis from a toxæmia due to cholycystitis was made and the patient was returned to his local physician with the recommendation that the gall bladder be drained. The operation was performed a few days later with ether anesthesia and lasted several hours. A number of stones were taken from the gall bladder but the patient died. No autopsy was made.

P. A., 34 years old, was operated by me for peri-appendiceal abscess in 1894. He recovered after draining the pelvis and removing the appendix. Following this operation he had repeated attacks of angina-like distress. These attacks increased in frequency and severity and at least one of them was attended by a slight jaundice. The physical findings were those of hypertrophy and dilatation of the heart, myocarditis and toxæmia. The blood was always low in hemaglobin with a leucocytosis of from 12.000 to 18,000 and occasional albumenuria of short duration. The region of the gall bladder was uniformly tender and for a long time I insisted that the site of his trouble was in a cholycystitis coincident with or the result of his appendicitis. In December, 1906, he had a more severe attack than ever before. His pulse was above 130 and there was an agonizing pain which was reflected to the right shoulder and the back and was aggravated by pressure over the gall bladder. I saw him during the night and gave some relief by an emesis and washing out of the stomach, and the next day I opened the gall bladder, which was found extremely thick, white, and filled with a clear mucous and thousands of stones. The patient left the hospital four days after this operation; the gall bladder drained for six weeks, and since that time he has been well and has gained over thirty pounds in weight. The transverse diameter of the heart has diminished to nearly normal, and the pulse has fallen to about seventy.

Mrs. L., 62 years old, was a mother of a large number of children. She had typhoid when a young girl. When about 35 she received an injury when a church floor gave way and she was trampled upon in the trouble that followed. For two days after this she had great abdominal pains and frequently vomited blood. Otherwise she has never had any sickness until Dr. Harder was called to see her with an angina-like attack. This recurred every few hours for several days and increased in severity. At last Dr. Babcock saw her and considering the history and findings believed that her myo-carditis was of a toxic origin and that the local site of the infection was in the gall bladder. The next morning I operated upon her and found a localized infection in the upper peritoneal cavity, surrounding the gall bladder. The gall bladder itself was a little larger than normal with walls nearly a centimeter thick, and in the cystic duct there wsa impacted a large dark stone, three-quarters of an inch in diameter and an inch and a quarter long. The operation took more than half an hour, and the patient died of sepsis three days later.

H. S., 60 years old, had been a very active man, and had suffered only of a parirectal abscess and a hernia. On the 16th of September, 1906, he had a slight fall in a golf clubhouse. Following this he had frequent attacks of palpitation and dyspnoea, one in particular on the 10th of November, which was pronounced by a prominent consultant to be angina-pectoris. He was so completely invalidized that he went to Florida and there made slight improvement. In March he decided to return to Chicago but was obliged to leave the train at Atlanta, go to a hotel and call a physician. He had great palpitation, dyspnoea and thoracic pain. The physician found him with fluid in the abdomen and an abdominal girth of 54 inches. During two or three weeks' stay in Atlanta he was greatly depleted and his girth was only 44 inches on his return to Chicago. The heart symptoms were so pronounced that upon his return Dr. Robert H. Babcock was called in consultation and made a diagnosis of a dilated heart from myo-carditis, probably due to an infected gall bladder. The liver was uniformly enlarged, so that the lower border of the right lobe extended four inches below the costal margin, and the left lobe extended beyond the left mamary line and downward to the umbilicus. The region of the umbilicus was occupied by a tumor which was at least five inches in diameter and had a smooth convex right border, and a rough, irregular but fluctuating left border. I saw the patient the next day, and on the 4th day of May, with nitrous-oxide gas anesthesia, opened the abdomen by a two-inch incision over the tumor. Immediately a pint or more of clear yellowish-red serum poured out from a space between the left side of the gall bladder and the omentum. This cavity did not have the appearance of inflammation. The peritoneum was perfectly normal. My finger passed down the side of the gall bladder into the foremen of Winslow. Two stitches held the gall bladder to the abdominal wall. It was open. A glary serum, resembling the white of an egg mixed with aotmeal poured out and at last dark bile. The operation lasted only ten minutes; the pulse fell to normal during the next two weeks, and the patient was around the hospital at the end of a week, and at home and about the city at the end of two weeks. The heart diminished in size, palpitation and dyspnoea disappeared and he returned to his business. After six weeks the liver was normal in size, except in the region of the left lobe, where there appeared to be an enlargement. The heart had come down to normal; the murmur had disappeared, and the patient was feeling well. The wound closed. Two weeks after the closure of the wound palpitation re-appeared, and the right lobe of the liver was found two and one-half inches below the costal margin. There was a slight edema of the legs, and a small amount of albumen in the urine. He came to my office and I opened the gall bladder again without an anesthetic, and introduced a silver tube, which I pounded out of a catheter. This drained perfectly for a time but in coughing it injured the wall of the gall bladder and a hemorrhage followed. The tube was then removed and after a few weeks the gall bladder closed again. The patient remained well until the 1st of September when he had a fall which produced an aggravation of symptoms and was followed by the appearance of a tumor at the left of the gall bladder. The liver itself did not enlarge but fluid appeared in the abdominal cavity and the legs swelled. He felt great distress at night in his extremities. The pulse, however, remained below 90. During the month of September he went to a sanitarium where he seemed to get considerably better. He saw many doctors here and they urged him to have his abdomen opened and the carcinoma or pancreatic cyst which was diagnosed removed. He was accordingly operated on by one of my colleagues on the 11th of November. Nitrous-oxide gas was administered and an incision five and one-half inches long made in the middle line of the abdomen. A cystic tumor was opened which contained about a pint of serum, when the patient collapsed and in spite of every effort failed to revive. On the following day I saw an autopsy made which showed the perfect condition of the valves of the heart and the corinary arteries. The cyst which had been opened was between the layers of the omentum and probably due to a twisting of the omentum, the end of which was firmly adherent in the sac of a right inguinal hernia. The gall bladder was thick and white, but contained no stone; the cystic duct was easily traced to the common duct which was not dilated; the foremen of Winslow was open and the pancreas normal. The kidneys were large; red kidneys of parenchymatous degeneration. The cause of death was evidently the anesthetic and the shock.

Mr. B., 48 years old, a Canadian, had no sickness except a catarrh of the nasal passages when he was a young man. At about 26 he vomited in the morning, either after eating or after drinking a glass of water, and formed the habit of going without his breakfast. Two years ago he began to be troubled with dyspnoea and a year ago had an angina-like attack, which brought him for the first time in his life to a doctor. After severe exertion in repairing the engine upon which he was engineer, he fell in the street and the physician who saw him pronounced it a case of heart-failure. He sent him to Dr. Babcock. Dr. Babcock found a dilated heart with pronounced murmurs, and treated him from February to May. During May and June, 1907, he had several angina-like attacks. Soon after the last one I examined him. His dyspnoea was so great that he was obliged to sit up most of the night. His lungs were normal. His heart was nine inches in transverse diameter, and extended from an inch and a half to the right of the sternum to about three inches to the left of the mamary line. It was correspondingly low. The liver was not enlarged but the region of the gall bladder was distinctly tender. The function of the kidneys was normal. I recommeaded a cholycystostomy and the operation was performed in June. Before the operation the pulse ranged between 100 and 130, and the patient was unable to walk.

The operation was done with Schleich anesthesia. The abdomen was opened by an incision less than two inches long. The gall bladder was easily brought into the wound, but at this point the pain was so great that the patient made involuntary motion that interfered with the necessary sewing. He was given gas and ether and the gall bladder sewed into the abdominal wound and opened. It was more than a quarter of an inch thick and almost as hard as sole leather. It contained a mucoid bile stained fluid. During the following week the pulse rapidly declined, and at the end of three weeks it was perfectly normal and did not rise above 80 even on walking up three flights of stairs. The heart rapidly shrunk to the normal size. Eight weeks after the operation the fistula was still open, the pulse was normal, and he was examined by Dr. Babcock who pronounced the diameter of the heart only a little more than half as great as when he first saw him. He has been at work as an engineer since the 1st of September.

These are a few illustrations of a toxæmia which manifests itself almost entirely in the circulatory apparatus, by a myrocarditis and a tachycardia. The cases which I have quoted had a cholycystitis as the primary focus of infection. Other cases might have been selected in which the local infection was in other cavities of the body, notably in the Fallopian tubes, the posterior urethra, the appendix, or the sinuses of the face.

A number of cases of nephritis have been traced in the same manner to a toxæmia from a primary cholecystitis. Nearly all of the secondary diseases, among which I would mention heart disease, nephritis, asthma, neuralgias, and some disorders of nutrition are symptomatic of a toxæmia, in many cases of which the primary focus will be found in the gall bladder or in one of the other mucous cavities of the body.

It is impossible to tell why one case of cholecystitis shows itself in s tachycardia and myocarditis while another precipitates a shower of renal casts and albuminuria. Just as lead poisoning produces a wrist drop and phosphorous poisoning a maxillary necrosis, so one case of cholycystitis produces a nephritis, and another a tachycardia and myocarditis.

There is a toxæmia in practically every case of mental aberration which requires commitment to an institution. This is manifested in the symptoms and findings both at the onset and during each of the exacerabations of the disease. There is a variation in pulse and temperature, there are all of the findings in the urine, and the blood shows a leucocytosis. So far as the studies have been made and reported, only a small proportion have been traced to a local infection. Most insanities are due to a toxæmia which does not produce an immunity; but rather predisposes to subsequent attacks, It is my opinion that there are many cases of insanity which are due to exogenous toxæmia that should be sought for in the infection of some of the natural cavities of the body, Thus a number of cases of acute mental disease present the symptoms of beginning acute yellow atrophy of the liver, the acetone breath, the hepatic enlargement, the slight jaundice and the urinary findings. It seems to me that every case of this sort should be immediately submitted to cholecystostomy on the presumption that the condition is one of cholecystitis and cholangitis, or at least of hepatoginous toxæmia, and possibly of bacterial origin.

There are no doubt many cases of tachycardia which are due to thyroidism. Exophthomic goitre, when the disease is confined to a single lobe, is very successfully treated by extirpation. The operation is readily performed without an anesthetic, and the results are almost instantaneous.

DIFFERENTIAL DIAGNOSIS OF BRONCHIECTASIS EMPYEMA AND PULMONARY ABSCESS.

By Elam T. Murphy,

Class of 1908, College of Physicians and Surgeons, Chicago.

The question of differential diagnosis is one of the most important in the practice of medicine. The fact that difficulties are encountered in differentiating diseases of a kindred nature adds much to the interest of the student of medicine. So frequently are found atypical cases of one disease closely similating another disease so far as symptoms and physical signs are concerned, that the question of a positive diagnosis is sometimes very difficult.

Luckily the physician or medical student of today can have access to literature which contains the accurate record of cases which were diagnosed clinically and at the post mortem, and in the microscopical and chemical laboratories.

The fact that empyema, pulmonary abscess and bronchiectasis have a great many symptoms in common make it a matter of study to arrive at a knowledge of the differential diagnosis in these conditions. Many cases of empyema are recorded in which pulmonary abscesses were also present; and also cases in which there was the presence of both an empyema and abscess closely simulating bronchiectasis.

In the Journal of the American Medical Association, 1890, Vol. XV., p. 97, a case is reported by Dr. P. C. Remondino, San Diago, Cal., in which the patient developed an abscess with an empyema following an attack of pneumonia. The case recovered after operation, but just before the operation the patient presented signs of extreme emaciation; feet and hands and legs œdematous; face puffy and a constant cough. The left lung seemed healthy except a circumscribed spot of dullness about the size of a dessert plate in the rear and lower portion of the left chest. The lower edge of the lung seemed healthy; but along the side and above the apparently healthy spot the same flat dullness was perceptible. The front was checquered with spots of dullness and resonance. It was diagnosed as a case of pulmonary abscess. The presence of pus was hard to demonstrate by any of the usual signs, as it was enclosed in a close and tight sac which gave evidence of neither metallic tinkling, wave motion nor bulging. It proved to be a case of empyema.

Two cases of empyema were reported in full by Dr. R. H. Babcock in the Journal of the American Medical Association, July 15, 1893, Vol. XXI, p. 66.

The first was the case of a war veteran, 58 years of age, who had suffered from an attack of lobar pneumonia of the right lower lobe in January, and on April 14, of the same year, when it was supposed that he had developed a pulmonary abscess he was examined by Dr. Babcock, who found the patient in the following condition, quoting Dr. Babcock's exact words: "Patient was in bed, feeble, emaciated, skin dry, pulse 108 and weak, appetite poor, constipation, intellect clear, but patient very nervous. On physical examination the respirations were easy and heart's apex was situated close to the left nipple in fifth interspace. On palpation there was diminished pectoral fremitus over the right infrascapular region, exaggerated in front. Percussion showed impaired resonance on right side of the chest anteriorly, dullness limited to the right lower lobe. On auscultation there was exaggerated vesicular respiration anteriorly; faint bronchial respiration in the upper part of lower lobe, but suppressed in the infrascapular region. No rales, and nowhere any indication of a cavity. The left lung was normal throughout. Accordingly diagnosis was made of empyema following pneumonia and which had begun to break through into the lung—not a pulmonary abscess."

The second was a case of a bookkeeper, 37 years old, who a month previously had been stricken with croupous pneumonia of right lower lobe. The disease pursued its typical course until the seventh day, when the usual critical defervescence occurred; but pyrexia again appeared and for the ensuing three weeks maintained an irregular and remittent character, falling in the early morning to 99 degrees and rising in the afternoon to $101\frac{2}{5}$ degrees. Patient became very feeble, weak heart action, progressive emaciation, much catarrhal expectoration. When he was seen by Dr. Babcock he was in the following condition: "Patient in bed, lying partly on right side, emaciated, feeble, nervous, pulse rapid, feeble, irregular in force, skin dry, tongue coated, moist, appetite moderate, temperature 100 degrees; pain in right side of chest when patient assumed the left decubitus. Physical examination showed apex beat in fifth interspace just within the left mammary line and in force a scarcely perceptible tap; cardiac dullness extended from the median line to one-half inch outside of left nipple. Over left lung resonance and respiratory sounds were of normal quality but somewhat exaggerated. In comparison at least the anterior portion of the right half of the thorax was impaired in resonance and the breath sounds were slightly broncho-vesicular; posteriorly and laterally the base of right lung was slightly yet appreciably larger in diameter than the corresponding part of the opposite side, and the intercostal spaces felt somewhat filled out, particularly just below the angle of the scapula. Percussion revealed dullness extending from just below the superscapular ridge downward and forward to the lower border of the fifth rib, a little outside of the anterior axillary line, being especially intense from this point backward and in the infrascapular region and over this dull area the respiratory sounds were faint and bronchial, accompanied by superficial subcrepitant rales just below the inferior scapular angle. Hepatic dullness extended an inch below the costal arch and at this level the tender lower edge of the liver could be palpated." The case was diagnosed as empyema following, or rather, associated with lobar pneumonia. Diagnosis was confirmed by operation.

Dr. William Porter, of St. Louis, in Journal of American Medical Association, 1891, Vol. XVI., p, 336, says: "If in addition to the physical symptoms of localized dullness and absence of vesicular murmur, we have the sudden appearance of large quantities of pus in the expectoration an abscess may be suspected. . . . Fremitus is often absent where the abscess is outside the pulmonary tissue, and increased over an intra-pulmonary cavity communicating with a bronchial tube partly filled with liquid."

The differential diagnosis of bronchiectasis has been so positively established for so long a time that we find very little reference to the condition except as a complication in the medical literature for the past twenty years.

Having made a study of several reported cases I think we are fairly prepared, at least, to make a differential diagnosis of empyema, pulmonary abscess and bronchiectasis.

In its early stages bronchiectasis presents symptoms quite similar to those of ordinary bronchitis—cough and expectoration chiefly; but as the diseese advances the spasmodic, painless cough is followed by a very profuse expectoration occasioned by the overflow of the bronchial secretions from the cavity and causing irritation to the healthy upper portion of the tube which evokes a cough. Sometimes expectoration amounts to a pint or more within 24 hours. There are also symptoms resulting from malnutrition and toxemia. Empyema sometimes ruptures into the bronchi, and the presence of purulent sputum may present symptoms like bronchiectasis, but in such cases the history is of greatest importance in the diagnosis. The bronchiectasis is a chronic affection, extending over months and years, while empyema is more likely to be recent, often accompanying delayed convalescence from pneumonia. The empyema, after a short time, is accompanied by a sharp pain in the side with sudden evacuation of a great abundance of purulent exudate. In bronchiectasis the patient does not present such a marked degree of emaciation, but may be fairly well nourished; the disease has a marked chronicity, and the changes in the respiratory movements are more marked over the lower third of the lung. There is also an absence of elastic fibres in the sputum of bronchiectasis, while in abscess of the lung the elastic fibres are often present in the sputum.

Pulmonary abscess usually presents the history of some recent affection, usually an acute pneumonia. The abscess may advance to gangrene when the characteristic odor of the necrotic tissue and malodorous gases, the presence of hematoidin crystals and shreds of tissue in the sputum, and the less violent manner of coughing easily differentiate the condition from bronchiectasis. Abscess is characterized further by a rapid respiration, rapid, feeble and dicrotic pulse. It forms cavities eventually; but before the cavity formation physical examination shows dullness on percussion over the affected area, increased vocal fremitus in palpation, and bronchial breathing. When the cavity has formed the breath sounds are hollow, blowing, cavernous or amphoric.

Empyema, as before stated, may be localized and open into a bronchus and simulate bronchiectasis, but may be differentiated as follows:

1. Localized enlargement of chest at site of lesion and later bulging of intercostal spaces.

2. Percussion notes show a zone of flatness which changes with the position of the patient, while if the cavity were empty it would be tympanitic.

3. The lung fistula sound in empyema instead of the hollow, cavernous or blowing sound.

4. Area of dullness follows a curved line.

5. Skoda's resonance in empyema.

6. Displacement of heart and other organs in empyema.

7. Absence of vocal fremitus.

8. Pulse rapid and feeble; but dyspnoea not so marked as in pulmonary abscess.

The empyema may assume so many different forms as to render an accurate diagnosis very difficult, It may be diffuse, sacculated, interlobar, pulsating.

The symptoms that we have mentioned apply especially to the common or more diffuse type, which, etiologically may be of pneumonic, tuberculous or streptococcic origin The interlobar forms are rare. One is rarely differentiated without the exploratory puncture. Such a condition was found in a twenty months old child, in June, 1901, when Dr Bayard Holmes resected a rib and found pus in the interlobar fissure. "Thick pus was evacuated, leaving a circular depression, which, by the finger, could be perceived to be surrounded by a thickened pleura which prevented the lung from immediately expanding and closing up the sulcus. The child made an uninterrupted recovery,"

The pulsating form of empyema presents a localized pulsation, which is synchronous with the systole. Butler's Diagnostics of Internal Medicine says; "It is usually differentiated from an aneurism by the pluritic history, absence of bruit and diastolic shock, and the location of the swelling further to the left than is usual in aneurism."

In the matter of differential diagnosis we may briefly summarize as follows:

I. conditions present in empyema only:

1. Baccelli's sign; whispered voice not as a rule transmitted.

2. Both empyema and abscess may follow a lobar or broncho-pneumonia.

3. Fever is present in both empyema and abscess.

4. The pneumococcus empyema and pneumococcus abscess have a favorable outlook; those of tubercular and streptococcic origin are not as promising.

5. Venous congestion and oedema of the chest wall.

II. Conditions present in abscess of the lung only:

1. Gangrene may result from abscess or from bronchiectatis cavities, but not from a simple empyema.

2. Common as a sequal to inhalation pneumonia.

3. Elastic fibres in sputum.

III. Conditions present in bronchiectasis only:

1. Amphoric respiration.

2. Tympanitic percussion unless sac is filled.

3. No fever and but little loss of flesh.

4. Prognosis good as to life, but incurable.

SOME DIFFICULTIES IN THE STUDY OF CHEMISTRY.

By Herbert B. Wentz, M. D. Prof. of Chemistry, Univ. of Illinois.

I regret that the subject which I have to present to the medical student is so dry that it recalls to me the doggeral that was inscribed in my first book of Latin.

"If there should be another flood
For refuge hither fly,
Though all the earth should be submerged,
This book would still be dry."

The Subject of chemistry is in itself an interesting subject, but like the old patriarch, Jacob, one must labor incessantly for seven years before fully appreciating the beauty and attractiveness of the conquest and then put in seven years more.

The essential beauties of physiology, the wonderful changes produced through medication involving a knowledge of materia medica and therapeutics; the compounding of medicines; the products, beneficial and sinister, from the fairy and eftlands of bacteriology; the magic of the surgeon's work; all depend upon chemical reaction.

Yet how little time is devoted to the subject, and how little are the fundamentals of the science understood. How often does one find that instructors of chemistry write such a statement as:

$Zn + 2\ HCl = ZnCl_2 + 2\ H$ and make explanation as follows:

"A molecule of zinc plus two molecules of hydrochloric acid equals a molecule of zinc chloride and two molecules of hydrogen", ignoring completely the fact that Zn is a symbol and as such stands for four things: (a) the name of the element, (b) the atom, (c)]the atonic wright, (d) one volume of gas, if the element is gaseous.

Hence the explanation should be: "An atom of zinc in reaction with two molecules of hydrochloric acid, result in a molecule of zinc chlorid and two atoms of hydrogen."

Inconsistency in statement of fundamental principles,and application of the same lead to a maze of error.

Not only is this true in the above illustration, but also in the application of the principals governing valency.

Valency is defined as the power which an atom discovers to combine with other atoms as referred to hydrogen as a base. The announcement is further made that valency increases and decreases in pairs. On the next page mayhap the movice is confronted with such formulae as $HgCl$, and $HgCl_2$. The anthoratative table of valencys gives Cl among the perissads while Hg appears among the artiads. How is it possible then for $HgCl$ to be a correct formula for a molecule if Hg has a valency which is always even, and Cl a valency which is always odd? The molecule $HgCl$ must then be a molecule which has one bond which is unsatisfied, and the student has been taught that a combination of atoms exhibiting one or more unsatisfied bonds can not exist in a free state.

He finds himself in the same position as that occupied by the farmer who became entranced through the long neck, spindle legs, flat feet, mis-shapen head and humped back of a dromedary. "By heck," he said as he turned away, "there ain't no such animal."

As a matter of fact the formula for calomel should be written $Hg_2 Cl_2$. The expression Cl—Hg—Hg—Cl shows the theoretical structure of the molecule and keeps the formula consistant with the fundamental truth.

When the student is confronted with formulae such as $Fe_2 Cl_6$ and $Fe Cl_2$, he has essentially the same conditions as prevail with Hg Cl and $Hg Cl_2$, but such formulae as $P_2 O_3$ and $P_4 O$ appear as posers until the theoretical molecular structure is again determined. $P_2 O_3$=O=P-O-P-O, and $P_4 O = \frac{\text{P-O-P}}{\text{P — P}}$ or P-P-P-P-O.

The fact that all compounds may be classified as acids, bases and salts is not sufficiently dwelt upon, and that any compound of acid tendencies in contact with substances of basic properties result in chemical reaction and that the result is a salt. Results are not sufficiently generalized.

Trouble also arises from confusing the classifications of salts. Neither text books nor instructors separate sufficiently the classification of salts by molecular structure from that of chemical reaction.

For example salts by molecular formula are:

Acid	*Normal*	*Basic*
$Na H CO_3$	$Na_3 CO_3$	$Bi O NO_3$
$Na H_3 PO_4$	$Cu SO_4$	$Pb_2 F (C_2 H_3 O_2)$

By chemical reaction are:

Acid	*Neutral*	*Alkaline*
$Na H_2 PO_4$	$Cu SO_4$	$Na H CO_3$
	$BiO NO_3$	$Na_2 CO_3$
	$Pb_2 O (C_2H_3O_2)_2$	

A salt is acid by molecular formula if it has a replaceable atom of H in the molecule, as $Na H CO_3$; it is alkaline by chemical reaction if it turns red litmus blue, as $Na H CO_3$. To most tyros in chemistry no difference is made between basic and alkaline, while the classifications are unfortunate in being obliged to employ the single term "acid."

As with other sciences there are certain terms, definitions and principles which must be memorized. This is also true of geometry, but it does not follow that because axioms, definitions and theories must be memorized the argument establishing the truth of the theorum must also be committed to memory. So is it with chemistry; when certain definitions and principles have been fixed the remainder may be safely committed to reason, and the danger of establishing false conclusions is no greater than is that found in mathematics, the so-called exact science. For example:

To prove $2=1$, let $a=1$ and let $b=1$ then $a=b$—Things equal to the same thing, etc.

$a_2=ab$—Equals multiplied by the same thing.

$a_2-b_2=ab-b_2$—Equals subtracted from equals.

$a\div b=b$—Equals divided by the same thing.

$1\div 1=1$—By substituting original values.

$\therefore\ 2=1$—By collecting terms.

In conclusion I would cite the inscription on the flyleaf of my last book of Latin: "*Non scholae sed vitae decimus.*"

A "C. S." EPISODE.

By Minima Pars.

My friend and former Patient, Madam Cloche, was a modiste employed by one of the largest Chicago department stores. Bad air, close confinement to business and the incessant strain under which her work had to be done brought on an auto-toxaemia difficult to relieve under the existing circumstances.

Results of treatment were inevitably unsatisfactory to both physician and patient unless the latter should relinquish her business, which she thought impossible.

Naturally professional visits became more and more infrequent and they ceased altogether for many months, at the close of which time the former patient was accidentally met, rosy, smiling and in the best of health and spirits. A heart to heart talk revealed that in the interval Madam

Cloche had become Christian Scientist, abandoned her business and opened a home for science healing; a change profitable in every way to Madam.

And Minima and Cloche went their ways for several moons, each fully convinced as to the truth, until one bright morning a dishevelled maid appeared at Minima's door and implored him to come quickly to the Hotel de Cloche.

"An should he live a thousand years", he never would forget the scene that presented itself there; a cosy, sunshiny room, looking out on a peaceful garden, a tidy white bed on which lay the wreck of a young woman writhing in eclamptic convulsions, while beside her stood a thoroughly frightened healer, holding in her hand "Science and health" from which she evidently had been ineffectually reading. The poor girl, for she was hardly more than that, was totally unconscious, unable to speak or swallow, and all the information that the healer could give was that the girl had come to her a few days previously from a distant state and was "fearfully irritated". Perhaps my C. S. friend spoke wiser than she knew, for the poor girl, as was subsequently learned, had tried in vain one physician after another until, with the assistance of friends, she had turned to Christian Science as a last resource, and that resource too had proven useless, so entirely so that Madam Cloche bemoaned hersel that she had taken into her home a patient of whom she knew nothing, to which Minima assented, wondering if all the Cloche patients did not come under the classification suggested. Be that as it may, she certainly knew nothing about the cause of the girl's convulsions except that she had once "proved a claim to cancer" and she believed the girl had not urinated for two days. No, she had no catheter, and did not believe in using one if she had it.

And why had she sent for a physician?

Oh, the girl's parents were not scientists and were bitterly opposed to her coming to the home, and to please them she thought there ought to be some physician called who could inform them, etc. etc.

It was not a time for professional ethics and Minima recalled quite distinctly Mrs. Eddy's permission given the doubting Thomas who asked her what she would do with a breach presentation. But, answered Mrs. Eddy, if you are a scientist you won't have breach presentations. But if I did have a breach presentation, what then? "Why, call a physician."

Madam Cloche was a good enough scientist not to have had a case of uremic convulsions, but she *did*—and she took Mrs. Eddy's advice in the emergency and listened attentively and obediently to what the mortal mind of a mere physician had to say on the subject. And what was more to the point, she had his prescription promptly filled and herself helped to administer the enema of bromide and chloral that brought relief, if not ultimate recovery to the girl.

It was a pitiful case,a most pitiful one of advanced toxic nephritis consequent upon carcinoma uteri. So far as could be learned there had been no urinalisis,no vaginal examination made; nothing but laying on of hands and reading of the Eddy jargon until the final explosion came; and two days later death, painless as Madam Cloche believes, because of the blessed teachings of Mrs. Eddy.

Shall we ever come to see alike? Prof. William James, of Harvard, who would hardly be accused of being an easily gullable person, in his recent article on the Powers of Men, declares that a friend of his dying of cancer of the breast has kept herself practically a well woman after she should have given up and gone to bed. Her doctors acquiescing in results they could not understand, have had the good sense to let her go her own way. So did Minima, even to the extent of writing a death certificate and thus preventing the coroner's jury and perhaps the closing of the house by the state authorities.

Possibly he was weak in so doing, but for the life of him he could not see what could be gained for legitimate medicine by haling Madam C. off to jail. All the King's doctors and all the school men could not have prevented the death of one so hopelessly riddled and poisoned with cancer. Kind, if ignorant friends, had from the best of motives paid the expense of a long railroad journey and put her in a home where she found cleanliness, peace and loving care for her last days. Could legitimate medicine have done more?

Is it not even possible that Christian Science, eliminating the Eddy, may teach us something.

M. P. H.

SOME HOPES OF THE CHICAGO MILK COMMITTEE.*

By Dr. Marcus P. Hatfield.

Reprinted from the Chicago Clinic.

First as to some of the things we do not hope for:

(a)—We do *not* expect to bring the general milk supply of Chicago up to grade of certified milk, viz: that containing 4.1 per cent fats, 12 per cent solids and bacteria not to exceed 30,000 to the c.c. The Woman's Club some years ago attempted the task, by the aid of a couple inspectors and their very own labels. But somehow both purchasers and milk dealers were apathetic and the scheme went glimmering as have more than one other equally good, proposed by that altruistic body. The fact is that the general milk supply of Chicago, thanks to the efficient work of our Health Department for the past fifteen years, is good. Fifteen years ago nearly 75 per cent of the milk sold in Chicago was below standard; to-day, 7 per cent. Chicago milk for domestic purposes and for use by adults is, we believe, better than that furnished any city of its size in the United States. It does not need any large improvement, except perhaps in the way of optional pasteurizing or sterilizating by the Health Department in case of a suspicious milk supply.

(b)—We do *not* hope for certified milk at the price of ordinary safe milk. We do not desire it, because the production of certified milk requires the use of skilled and conscientious labor which ought always to command higher pay than does ignorant and careless work. Cleanliness is expensive, very expensive, as our hospitals have learned when they attempt to be absolutely aseptic. Certified milk is aseptic milk, and it is possible only with the greatest care exercised under the conditions which have already been detailed to you. All these things cost money, much money and this cost must be eventually met by the consumer. Clean, pure milk is the cheapest food dietetically that comes upon our tables. We ought not to expect to pay less than 8 cents a quart for safe milk and from 15 to 20 cents for certified milk. And just here we meet with the thrifty housewife who regards increased cost of milk as one of the cardinal sins of housekeeping. It is inexplicable to mere man, but the fact is that the woman who denounces her milkman as a thief and a robber for increasing the price of his milk 2 cents a quart, will cheerfully spend many days' milk money at the Grill-Room or the euchre table and never think that she is being swindled. The milk dealer deserves better pay and encouragement for any effort to improve our milk supply. We have labored under the fallacy that all he requires is that we shall show him how to keep milk sweet and clean, to have him eagerly embrace our methods, irrespective of cost. We have forgotten the fact that the milkman is in the milk business for its profits and that keeping milk cooled and clean costs more than to let it get heated and dirty. It is not lofty ideals so much as hard cash that attracts the milk producer and he must be shown that the one is not antagonistic to the other before he can be expected to manifest any wild enthusiasm in the production of certified milk.

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*Read before the Chicago Clinical Society, Oct. 16, 1907.

(c)—We are not convinced as to the desirability and hence do not hope for municipal pasteurization or sterilization of our general milk supply, notwithstanding the fact that the Milk Congress, recently held at Brussells so voted by a considerable majority. That pasteurization is very desirable under certain circumstances is undoubtedly true, but its practical application had better be made at home, as advised in our report. For more than a year past the subject has been vigorously agitated in New York State and City. The ordinance, as originally presented to the aldermen of Greater New York, made compulsory the pasteurization of all city milk containing over 50,000 bacteria to the c.c. Later it was amended to read all milk except that from previously tuberculin tested cows; furthermore the Department of Health proposed to do all of the pasteurization and charge the milkmen 2 cents a quart for so doing. This naturally raised a storm in consequence of which the amended bill sleeps peacefully in that pigeon hole to which all tabled resolutions are supposed to go. What then are the hopes that bring us before Chicago Medical Society to night?

Chiefly this. We hope for and must have your assistance, if we succeed in legalizing higher grades of milk than that now held as a safe standard by the Department of Health. The necessity for such higher grades of milk for the benefit of sick children and invalids is too well known to you to need any discussion. The Department of Health, the leading milk dealers and some progressive producers stand ready to help you in this work, but the demand must come from the physicians of this city to make it effective. It is a wild scheme to try to sanctify the entire milk supply of Chicago. That would be Utopian. The committee hopes to grade only the milk designed for children's use. The classification proposed is as follows:

1. *Certified milk*, produced under the most stringent conditions of cleanliness, the details of which have been given by Dr. Abt, said milk being guaranteed to contain 4.1 per cent fat, 12 per cent solids and bacteria not to exceed 30,000 to the c.c.

2. *Inspected milk* is guaranteed to contain 3.6 per cent fat and not over 100,000 bacteria to the c.c. and to have been cooled to 50 degrees F. within two hours after milking and kept below that temperature until delivered to the consumers. As the conditions under which it is produced and handled are less stringent than those for certified milk, inspected milk is less safe, but as it has required less care it can be sold at a smaller price, say 10 or 12 cents a quart.

3. *Approved* bottle milk, as its name implies, is a good,

clean milk bottled under conditions to be approved by the milk inspectors of the Health Department.

4. *Commercial pasteurized milk.* is that pasteurized by plants which have been inspected and are open to inspection by the Health officers.

But perhaps you say we already have all these varieties of milk upon the Chicago market. Yes, you can buy milk under any of the names suggested, but, with one or two notable exceptions, do you know what these milks contain? All that the milk dealer now needs to produce certified milk in the eyes of the law, is a milk that comes up to the city milk requirements and a rubber stamp. It is not long since that a friend of mine found a milk ticket at the bottom of a bottle of milk labeled certified by one of the leading dairies of the state. And there is, so we are informed, at present no legal redress. "Certified" is not a legal definition. Anybody can certify that his is certified or inspected milk provided he signs or stamps his bottle with his name. Bottled milk, legally, is milk that is put in a bottle by any one, no matter how dirty. The producer has a legal right to mark it "bottled on the farm," even if the milk house of that farm is the Coney Island for the rats of that neighborhood, although as a rule it no longer pays to ship dirty milk to Chicago since said dirty milk must be shipped sealed and is liable on inspection to be turned into the sewer at the shippers loss. All honor to what has been accomplished in this way. There is no child now living in Chicago but has reason to be thankful for the work done by our milk inspectors; but excellent as have been the results we, as physicians, have now the right to demand one thing more in behalf of our patients, viz.: that we should know exactly what we are using when we prescribe certified, inspected bottled milk. Certified milk ought to mean just one thing the world round and when a milk dealer puts upon the market anything less good he ought to be severely and persistently fined until he stops. This cannot at present be legally done until an ordinance be obtained from the City Council standardizing the higher grades of milk. No dealer should be compelled to handle these higher grades, if not so inclined, but, if he elects to supply his customers with high grade milk, then he must supply exactly that or be severely fined. There are a few producers whose names are ample guarantee as to the quality of their certified milk, but there are a host of dealers whose certified milk means that they have the ability to buy a rubber stamp—only that and nothing more, and the worst of it is that there is no legal redress for the buyer. So long as there is no other false statement on his labels the dealer has the same right to use the word certified that the vender had to name his wares hot mutton pies, although they were neither hot nor made of mutton.

We come asking your help to remedy this anomalous condition of affairs. The average consumer has neither time nor ability to ascertain the real condition of the milk he is buying. His physician has ordered certified milk for his ailing child and he buys what his dealer furnishes under that name—and the baby dies. Who is to blame? Partly the milk dealer, who may have sinned ignorantly, partly the Health Department which has not been rigid enough in its requirements, but in a greater measure are not you, ladies and gentlemen, largely responsible for this failure to have done your full duty towards these little ones, whom you have taken oath to protect to the very best of your ability. Have you done it? If not, will you now make individual effort to help the least of those who most need your help? It will not be done unless you—as physicians—rouse popular sentiment on this point. Finally, one more hope, which is personal and not authorized by the Milk Committee. It is this—that the present agitation may lead eventually to the establishment of municipal milk stations where the poorest of the poor and those who are not so poor may obtain certified, inspected, bottled or pasteurized milk as the case may require at nominal cost. As Dr. Evans has demonstrated to-night infant mortality is highest where ignorance and poverty most abound and where most of the convictions for the sale of impure milk occur. It is in just such neighborhoods that the French "Gouttes de Lait"—or municipal milk depots—have been most successful. The work carried on by the City of Rochester during the summer months for the past two years has proven that this work may be reduplicated in America at a reasonable price and with most gratifying results. The Children's Hospital Society has made a start in this direction. They have stations already established and if their success has not been all that was wished, they need only municipal inspection and co-operation to make them all that they ought to be.

THE PLEXUS.

COLLEGE OF PHYSICIANS AND SURGEONS
MEDICAL DEPARTMENT
UNIVERSITY OF ILLINOIS.
CHICAGO.

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Send contributions to A. R. Johnstone, M. D., Editor, 4147 Lake Ave., Chicago.

Our mailing list has been corrected, and we want every subscriber to look at the label and note if it is correct, and if not, report to this office and it will be appreciated. A year ago we gave notice that all delinquents would be drawn on after a given time, but as the returns came in so liberally we expected that all would remit, and postponed collection. Now, however, those accounts that are two or more years in arrears will be placed for collection if not settled by Jan. 10, 1908.

THE DUTY OF THE TEACHER TO THE STUDENT.

The medical student in these days of higher educational requirements must look forward to facing a class of competition when he commences the practice of medicine that is very keen, and he must fight his way into favor with a public that is steadily growing more critical and exacting because of their increasing intelligence in matters medical. Effort is constantly being made to enlighten the public in relation to hygiene and other medical subjects, and this brings with it a more discriminating judgment in the selection of medical advisers.

The recent graduate, however well grounded in Medical theory, must compete with men most of whom have continued to be close students of medicine, and who have added practical experience to theoretical knowledge and have therefore a large handicap in their favor.

The medical student realizes this and he naturally looks to his teachers to give him the largest measure of practical and theoretical knowledge that they can give him in the short space of four years. The student knows that the knowledge gained in college can only serve to start him fairly on his way, but he feels that he may justly expect the teacher to give him the best that he is capable of and also that the teacher shall be reasonably capable.

There are seseral ways in which the teacher may fail to do his full duty to the student, and a considerable number of these lapses are avoidable. To be sure the teacher must usually be a busy practitioner and have many urgent calls upon his time, and ofter his strength is taxed to the utmost. Yet if he is to teach, he is in duty bound to provide the time and make the effort to teach well.

Failure to keep appointments with his classes or to be late for such appointments may readily be excused occasionally and must necessarily be unavoidable at times, but frequent repetitions of this can only be ascribed to indifference to the obligation and carelessness of the interests of others, or bad economy of time. The fault in either case is inexcusable.

Inadequate preparation for the work is another fault that is occasionally complained of. This fault when it does exist is most unfortunate for the teacher. He must needs be a smooth talker who can blind a class of medical students with mere words. The teacher who entertains well may hold his classes for a time, but the teacher who imparts knowledge gains respect and grows better year by year.

It has been said that the teaching instinct is a gift, and in a sense this is true, but medicine is a subject that includes in its scope most of the sciences combined with intensely practical experience, and the man of action can find in it that which he can teach quite as readily as can the abstract philosopher, and with as much advantage to the student.

The field of medicine is a vast domain and little more than its principles can be acquired in the course of college life, but the teaching staff owe it to the students to ground them thoroughly in those principles and to waste very little time on irrelevant subjects.

The number of medical students enrolled in the 152 American medical schools of all sorts and kinds has diminished about four per cent a year during each of the last four years, or almost 4000 in all.

In the United States in the school year 1905-6 there were 7,717 students enrolled in 150 theological schools, 15,411 in 98 law schools and 24,924 in 152 medical schools. The theological schools were housed in quarters valued at $13,841,642 and supported by endowments of $25,892,539 to which $3,271,480 was added during the year. At the same time the 24,924 medical students were accomodated in buildings valued at $14,414,127 and had the support of an endowment of $1,815,045. Incedentally notice that the libraries of the theological schools contained 1,668,457 volumes, while the medical schools reported only 199,567 volumes. So much more valuable do our people consider the health of the soul than the health of the body.

* * * * *

Your editor had occasion to call on a professor the other night. He was dictating to his typewriter a case history and the result of treatment. His careful attention to symptoms seemed almost Hahnamannian. When he was through and the clerk gone he stirred up the fire and opened up a box of pell mells and we pulled up to the hearth. There are few smokes so reassuring as the unexpected Turkish cigarette with your parson or your professor.

"Signs" said he "yes, signs are necessary. So are coats, the young doctor can have a big coat, a fur coat or a checkered coat, but good taste will dictate a modest and comfortable coat. So of signs. A neat small permanent sign, something like a door-plate looks well and promises well. No, not in a window or on a window, either of a residence or an office, just on the door. 'ENTER HERE,' yes, but not more. '*Laboratory*,' X-RAY ROOM' 'CONSULTING ROOM,' 'OPERATING ROOM' and such other advertisements are to say the least, vulgar, On the automobile? For God's sake no! Be proud of your calling to be sure, but don't smell of it, one of our most honorable contemporaries has just been inveigled into taking the two eight inch by eight feet gilt signs off his windows and the nine inch red cross of his automobile, but it was not real badness on his part but only poor taste. His wife! Well men get wives with different ends in view, but a gentleman will never use his wife as the head of his department of publicity and promotion. The social stunt is all right if you like it and can stand it. It takes a man who enjoys it to do it well. A little is necessary but much is dissipating and effeminating. No, my name is not on the cigarette papers. It isn't necessary and don't seem real nice to me, but there is no reason why you shouldn't do it if you want to. The newspapers! yes, they are all right and often quite helpful to the young doctor when he settles in a new town, but that ought to end it. Not so much on his own account as because his relations with his patients are of a private, personal and often delicate nature. Public mention may be advantageous to the physician in making him known, but embarrasing to the patient and alarming to prospective patients. In the office? Don't; keep the skul and all specimens and diagnostic and surgical instrument well out of sight. We are related in the minds of the people with death and grewsome things enough without having such witches paraphrenalia about."

"Consultations are necessary and a good neighborly consultant one of the surest supports of the young doctor. It will take you some time to become acquainted with your neighbors and select the man who can and will advise you right and wisely and be your friend when you are up against it. Yes, he is the man you will have when you are sick or any member of your family. Take your time in selecting him and when he comes to your patient have his fee ready for him and see that he gets it on the spot. Make the consultation formal as the Code suggests. Formality saves many blunders and misunderstandings. After you have gone through with the formalities a few times you can't do otherwise any more than you can fail to "salute your partner."

* * * * *

"Surely you will join your local society at the first opportunity and attend every meeting. You have few enough places in which you can measure yourself with your competitors. The lawyers meet daily in court. The doctor goes alone to the bedside. It is encouraging to meet your neighbor in a professional society where your interests are alike. As soon as you can afford it join the state and national societies and try to attend at least once in two years.

* * * * *

"By all means take as many medical journals as you can read. Take one annual like Head's Year Book and one or more weeklies. If you join the American Medical Association your dues will furnish you their journal. Decide for yourself what you like best to read. During your first years of practice form the habit of reading and you will never stop it until your eyes give out. If you don't read until you can afford to buy journals you will never learn to read. New book? Look out for new books. They are made to sell. Never buy of a canvasser or on installments. Pay for one book and read it. If you can't by two read it twice. The book agent is a grafter. If you want covers to fill up your shelves you can get them at half a dollar a foot. They are not however worth it for signs. No. Bind them yourself. You will have time, You will learn something that way, to sew and make things fit and that is necessary for the good doctor." B. H.

SENIOR NOTES.

ONLY—A—PAIR.

In his early practice Dr. D. B. St. John Rossa, the eminent New York Specialist, oneday received a letter from a man living in a remote part of Connecticut, says *The Saturday Evening Post*.

The writer explained that he was afflicted with growing deafness, and that a summer visitor to the neighborhood had suggested his going to New York and consulting Dr. Rossa. After describing the symptoms, the man ended by asking what was the probable nature of the trouble. Dr. Rossa suspected from the tone of the communication that the case was not for him, but he, of course, replied advising the man to consult a local physician, and adding, in answer to his direct inquiry, "From what you say I should presume that your difficulty arises from a diseased condition of the middle ear."

Two days latter the doctor found this among his mail. Dear Sir:—Your's received and contents noted. What do you take me for? You talk about my middle ear; how many ears do you think I've got? Three or five? My ears may be pretty long, and I guess they are, or I would'nt be writing to no New York doctor for advice, but I'd have you to understand that I've got just two of them, and no more, like others, so there ain't no middle one.

Don't get fresh!

Durkee advises that we use Browning as a "tampon" in order that we may always know where to find him.

Who pulled the chair from under the lady anoesthetist in Dr. Fuller's clinic?
For particulars see "Buck" Kelly.

Dr. Wells:—What causes Diabetes?
Simon:—Lesions of the Medulla.
Dr. Wells:—Long or short bones?
(Now where's the joke?)

Much can be said on "the impersonating qualities of the Misses Wood," now quite a noticeable feature during Senior roll call.

Quizmaster:—What is "Gastroptosis"?

Thurber:—A disease of the stomach without symptoms.

"Advancement" our Motto—From breakman on threshing outfit to attendant in detention hospital is the phenomenal rise of one of our tall members.

While the snow lasts 'tis safer—to—approach—406—in a—suit—of—armor—.

NOTICE:—For "Diseases of Children" consult Dr. A. L. Lee—by suggestion of Dr. Davison.

Senior May Fail Through Inability To Get In Hours—Dornblaser who has signed for 144 hours on Y. M. C. A. couch, finds to his sorrow, that by present date he has put in only 20 hours.

His argument is based on the fact that "Silver" and "Joh" are too attentive to said couch, and that two cannot do justice to same at like time.

He advises no more registrations until after June, '08.

CONTRIBUTIONS BY THOMETZ. (Class Poet)

Dr. "Blow-hole" Dolan, one of the select members of the Senior class, was seen to enter Pittsburgh Joe's metropolitan dining room. After ordering an Irish stew, he luxuriously placed his feet upon the table, and in an absent minded manner, spoke of his brilliant self as follows:

Oh, I'm the man, the ham what am,
The real thing boys, no measly sham,
The man you heard so much about,
When I from Kankakee got out.

When I was two months old, I walked,
At four months, I good English talked,
A little older tackled steak,
And never howled with belly ache.

I made a hit at all the schools,
Compared with me the rest were fools.
I'll take when through with P. & S.
A county interneship, I guess.

And later on, see far and wide,
How I'll be praised on every side,
The one who wins, while others fail,
Goes in an conquers, when all quail.

The waiter here disturbed the doctor, and our reporter was unable to get more interesting information of this sparkling genius. (Press note).

THE FLUNKER'S CONSOLATION.

Said flunker one to flunker two,
"I think it mighty sad
To see the teacher take a few.
And put them to the bad."

Said flunker two, "Oh, not at all,
I simply won't believe,
It's very bad to take a fall,
A failing grade receive."

"Just think about the unlucky man,
Who's got a passing grade,
He can no more his poney scan,
He's left right in the shade."

But we again can take our seat,
Our dear professor hear,
I tell you friend, this can't be beat,
It's fine, this extra year."

THANKSGIVING NOTES.

Serene Mr. Kelly,
Filled his belly,
Full of pumpkin pie;
Champagne and a grobbler,
Made him a Wobbler,
And so awfully sick he could die.

Next had gastritis,
And acute enteritis,
A tongue as big as Clarke.
They prescribed massage,
And gastric lavage
And made him feel like a lark.

Wouldn't Dr. Durkee
Be a fine turkey
For a cannibal's Thankgiving dinner,
His nice fatty liver,
Stuck up on a sliver,
Would taste fine to the cruel red sinner.

To make his argument with the quizz master strong regarding "Intussusception," Durkee cites a case in which 17 feet of intestines passed. Seeing an expression of doubt on the instructor's face "Duck" hastens to state "that it might have been vomited." Of course "Durk" is from Dakoty.

SOPHOMORE NOTES.

The Sophomore Basket Ball team opened the season with a glorious victory over the Union Park men. The score was 32 to 22. The tact and skill displayed by Thompson, Ballard and Cohn were the features of the game. Several games have already been scheduled, and the team has the hearty co-operation of the entire class.

Quiz Master—"Mention some further uses of iodides."

Bradley—"Why I would use them when I did not know what to give,"

(Voice from back of room)—"How often would that be?"

It required the combined efforts of Carey and Smith to convince Grove that Croton Oil is not a hair tonic. This probably accounts for some of the untoward effects of Grove's otherwise mysteriously acting tonic.

In as much as God in His infinite love has seen best to call from this world Mrs. Dryer, mother of Dr. G. P. Dryer, therefore be it

Resolved, That we, the members of the Sophomore class extend to Dr. Dryer our heartfelt sympathy in the hour of sorrow. Be it

Resolved, That a copy of these resolutions be sent to Dr. Dryer. Be it further

Resolved, That a copy be sent THE PLEXUS for publication.

Marian Forbur }
S. A. Smith } Committee.
J. C. Rogers }

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DENTAL DEPARTMENT

UNIVERSITY OF ILLINOIS.

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BATAVIA. ILL., DECEMBER 20th. 1907.

INAUGURAL ADDRESS

OF THE

COLLEGIATE SESSION OF 1907 TO 1908,

UNIVERSITY OF ILLINOIS, COLLEGE OF DENTISTRY,

Delivered by MATHIAS JOSEPH SEIFERT. M. D.

Professor of Physical Diagnosis and Anesthesiology University of Illinois College of Dentistry. Assistant Professor of Operative Surgery University of Illinois College of Medicine.

Worthy Dean, Esteemed Colleagues, Dear Students, Ladies and Gentlemen:

Permit me at the outset to express my profound appreciation of the honor conferred upon me this evening. To be invited by the committee to deliver an address before so learned a body of men and women is an honor at once pleasantly gratifying and appallingly overwhelming.

The welcome the University of Illinois offers you this evening is not of the effusive and often hypocritical sort that one witnesses in the modern society drawing room. but rather that of a kind yet exacting father, who in a lovingly unselfish manner invites his son into his confidence in order to guide, instruct and assist him in planning and training for a future career of special worth and honor—for a life resplendent with noble achievements, reacting upon the wisely and generously directed son as well as upon the family—honor. Such is the welcome extended by a University matured in scientific experience to a student body aspiring to the highest ideals attainable in any vocation, i. e., the devotion of a life's work to the alleviation of human suffering. Inspired by these exalted motives the University of Illinois bids you a thrice hearty welcome to its halls of learning.

Our purpose this evening, besides cultivating an acquaintance under pleasant surroundings, is to initiate you into the democracy of the University spirit and the true fraternalism of men of science; for in the realm of science there remains so much to reveal that master and student together must labor to achieve what never has been attained before. Moreover, we want to consider briefly the more serious purpose of our attendance at the University, some of our reasons for study and some of the lofty principles and ideals that should govern our actions as students and as members of a noble profession.

It is indisputable that nothing is more precious than human life. Without it, of what purpose is all else in the world? Whateuer ministers to the well-being of human life, then, is doubtless of greatest value. Medicine in all its various departments deals directly with the saving and protecting of human life, and, as such, is the noblest and the most philanthropic of the sciences; so much so that even the wit of Falstaff flashes forth the following:

"Physicians mend or end us
Secundum artem; but although we sneer
In health, when sick we call them to attend us,
Without the least propensity to jeer."

The spirit of humanity is best exemplified in the medical and dental professions. There may be more spiritual things than the alleviation of pain and suffering, but none more worthy of our love for fellowman.

They, who undertake deliberately the care of the foul, infection-breeding diseases of humanity to bring relief to suffering are genuine men and women. No less worthy of the highest praise are those patient and persevering bacteriologists and pathologists who spend their lives in the study of the etiology and prophylaxis of disease.

The wonderful discoveries and no less remarkable cures which modern research has brought to light, have had an influence of inestimable value upon the health, the happiness, and the mortality of the race. We need consider only the immense influence upon the progress of the surgical arts of a few of the great discoveries:—The circulation of the blood, the healing of wounds by blood-clots and the ligation of the vessels in their continuity, anesthetics and antiseptics. These discoveries have revolutionized the practice of surgery and dentistry and made present-day achievements possible.

While there is no real break in the history of the medical sciences from Hippocrates, who was born 460 B. C., to 1800 A. D., yet during this vast period of time their progress was extremely unsatisfactory. The insurmountable difficulties which presented themselves to the physician in early days can scarcely be conceived by our present generation. How bitter the struggle was for surgery and dentistry to establish a claim to honorable and dignified recognition, can be well imagined when the pain in surgical operations, the inability to control hemorrhage and to prevent infection were such formidable obstacles to their successful practice.

In those days only operations of utmost necessity were undertaken and these usually were performed only through necrosed or gangrenous tissue, since the dread of hemorrhage from an unknown source was so overwhelming.

The wonderful strides which surgery has made in the past century are directly traceable to the two transcendent discoveries of anesthetics and antiseptics. These two discoveries have made our modern operations a kindness and a power at a time of direst need. Let us picture for a moment the contrast in operations prior to these discoveries and those performed in our day and generation. Less than a hundred years ago scenes of such barbarous cruelty were enacted that their counterpart can scarcely be found in the annals of warfare. The cruelties of the Spanish Inquisition, the horrors of the French Revolution, the fiendish torments of the Turkish Bastinado, all these, are shadows of the tortures of operations in former centuries; and all, mind you, in the name of surgery. Patients were held down by brute force and operated upon while in full consciousness. Red hot knives were applied and their wounds dipped in seething tar to control hemorrhage, all this while the patients would cry out for mercy and beg for a discontinuation of these agonizing treatments.

Now all that is changed. The patient falls asleep and awakens to consciousness after the operation is all over. The convalescence is in most cases afebrile and painless, while the mortality is reduced to a minimum and the operation is robbed of all its horrors. And all this change is due mainly to modern anesthesiology. While I am treating my subject more or less with reference to the medical profession in its broadest sense, I do not lose sight of the fact that I have the honor this evening of addressing a body of students in the dental department. It will be of particular interest to you, then, to learn that these great advances are directly traceable to the discoveries made by two members of your own profession.

In 1844, Horace Wells, a dentist of Hartford, Conn., discovered that nitrous oxide gas could be used successfully as an anesthetic. With the true courage of his convictions, Wells tried the experiment on himself, having one of his own teeth extracted by his assistant while under the influence of the gas. On returning to consciousness a few moments afterward Wells cried out; "A new era has dawned upon the world. I did not feel it more than a pin-prick."

In 1846, Wm. Morton, a Boston dentist, after having inhaled ether himself experimentally in a most dangerously courageous manner, successfully etherized a patient, Eben Frost, for the purpose of painless tooth extraction.

These discoveries as well as those of the more recent scholars have made modern therapeutic and prophylacxic measures possible. Of what immense value are not the researches of noble men and women in this great field of labor! Often remote and obscure, far from the splendor and splurge of the clinical amphitheatre, alone in their laboratories, these men and women heroically, unselfishly, carry on a battle with pain, and disease and death compared to which the noisy and riotous battles of which history loves to boast are as mere bagatelles.

And to you, dear students, all this vast fund of knowledge of the ages past, together with the researches of the present time are handed down in form of crystallized diadems. Fortunate students!—Your life, the time of grace spent in preparing for an honored professional career, is truly a divine gift accorded to comparatively few. How frequently does the observer meet in lowly walks of life, men who are endowed with all the natural attributes required of an ideal doctor, dentist, lawyer, minister or statesman! When we consider the millions of population of the universe, and the comparatively few that are blessed with opportunities for studying in early youth—the period allotted to the mental development so essential in later years to the rational solution of the manifold problems daily confronting the professional man,—we must indeed feel a *profound gratitude* and a *keen responsibility* and sing out from the depths of our hearts a Deo gratias! Many of you are typical, self-made, American students. What feelings of deep admiration does it not arouse in us to see courageous students, struggling in the midst of poverty and all possible hardships, lacking everything save a determined purpose and a will to attain it, strive with unremitting zeal, and "like the working bee in blossom-dust," labor behind the plow or at the throttle of an engine, live up in dimly lit garrets depriving themselves of every comfort—nay often even of sufficient food, in order to gain wider views of the fair worlds opening out before them. These are truly great minds. Their hindrances and difficulties, even though the ascent be weary and full of toil, are but *stepping-stones* to *power* and to *success*, and prove unfailingly that the important thing for us all is to have an *aim in life* and to pursue it with perseverance. No matter what the sacrifice, the suffering, the self-denial for the sake of an education, the *opportunity* is "God-given".

Philosophy teaches us that each individual's character is determined largely by heredity, environment and education. Of these three factors, the last mentioned, education, is apparently the most potent element in the upbuilding of character. This fact was known even by the ancient Arabians from whom the time-honored maxim has come down to us: "If you are about to aquaint yourself with a man, first learn where he was born, and next how he was raised."

A liberal education is not so much knowledge as it is *preparation* for knowledge. It is not so much actual information as it is the *power* that it grants us, power to think for ourselves, power to cope with the actual problems of the world. It confers upon us a strong mental grasp so that we may see things as they are and make the most of every situation as it arises. Learning about things merely will not develop those powers of mind which are required in the life-long labor for the accomplishment of a worthy purpose.

If we go back to the original root of the word *education*, from the Latin *e* and *ducere* we find that the word really means "to lead out," "to draw out from;" in other words, "to evolve." It is, therefore, not a "putting in" so much of knowledge as it is the "drawing out", the evolution of mental powers. What does a wise teacher strive to develop in his pupils? Ability, the power to grapple with whatever problems and difficulties arise in his path, to meet and bear all temptations and sufferings bravely, courageously; to be prepared to make the most of every situation. The best teacher is he who makes it his aim to give insight into the true meaning and real worth of a life devoted to the conscientious practice of a profession, such as it should be, with *mind and soul* surcharged with science, with charity, and with all the high attributes these two terms imply. Every professional man must work out his own salvation, so to speak. Without ability to judge, compare, analyze and discriminate, all the text-books in the world would be of no avail. It is just this power, this training for which a liberal education prepares us.

It is obvious then that our education is not confined merely to our period of residence at the University. Let us not imagine that education is merely or chiefly a scholastic affair; that once we have passed beyond the portals of our Alma Mater, our education ceases. Our study is a life-work to be carried on not only with an unabating ardor but also with a constantly expanding manly energy. We may consider our studies at the University as representing the experimental, the formative stage of our education, whereas the broader knowledge which we acquire on entering and laboring in our profession, which comes with experience, may be regarded as the realization period of our education.

Our study is a life-work to be carried on unceasingly and unselfishly. As representatives of a learned profession we should possess more than professional knowledge and skill. The doctor should be an exponent of the science and the culture of his age and take his place deservedly with the wise men of the community in which he labors, ever ready to guide, defend and council.

There are two important views of culture; the first is the scientific passion to see things as they are, a desire after things as they are for their own sakes. There is also another view and this is altruistic in character—"in which," as Mathew Arnold puts it, "all the love of our neighbor, the impulses toward action, help and beneficence, the desire for removing human error, clearing human confusion and diminishing human misery, the noble aspiration to leave the world better and happier than we found it—motives eminently such as are called social—come in as part of the grounds of culture, and the main and pre-eminent part." If we wish to distinguish between education and culture, we may say that the former *ends* when we leave school, whereas culture, the harmonious expansion of all the powers of mind and soul, properly *begins* on leaving school.

Culture is an ideal of human life completing itself on all sides. It is evidently then a much larger term than education; culture is a process of life development. While it is manifestly of the utmost importance that the specific education of the professional man be thorough—as in therapeusis we have a profession in which to be ignorant is to be criminal—yet we should upbuild our beings on every side. To be an intellectual power in this age the professional man must know, must know much and must know thoroughly. The profession of today demands of us great minds, generous hearts and noble souls that judge correctly in all matters. Doctors especially should be free from the prejudicial method prevalent among the uneducated trades people, of misjudging and condemning competitors. It is both uncharitable and unscientific to judge a colleague by hearsay or opinion instead of by carefully prepared evidence. Bishop Spalding says: "Those who know least not only misunderstand us, but they are also quickest to condemn."

Be tolerant with the imperfections of others as you know not the physical ailments, hereditary taints, mental over-exertions or slashing reverses dictated by a relentless Fate that were causative in the production of the very conditions you are about to taunt and, thereby, to cast a slur upon the good name of one who perhaps deserves much credit. The immortal Shakespeare says:

"Good name in man and woman, dear my lord,
Is the immediate jewel of their souls;
Who steals my purse. steals trash, 'tis something, nothing;
'Twas mine, 'tis his, and has been slave to thousands;
But he that filches from me my good name,
Robs me of that which not enriches him,
And makes me poor indeed."

The doctor or dentist more than any other professional man has the opportunities to meet various conditions of life face to face. There is no hovel too odious, no night too dark, no storm too violent; where duty calls in pestilence and contagion, the true physician waits upon the miseries of mankind like a soldier at his post, His close contact with life in all its phases will open up vistas of surprising comedy, and on the other hand of deepest tragedy. He will learn much of the weakness and wickedness of men, but his sympathy and love will thereby be purified and strengthened, for does not contact with sorrow and pain chasten and refine all of us,broadening our sympathies and ennobling our love?

What augustness of purpose is allied with the Hippocratean art! What a grand, sublime purpose impells its disciples to action! What a divine purpose for mere mortals to embrace! Our great orator, Webster, speaks: "It has a purpose, and that great purpose gives it character, that purpose enrobes it with dignity and moral grandeur That well-known purpose it is which causes us to look up to it with a feeling of awe."

I speak of the doctor's purpose, the doctor's unostentatious sympathy—the silent sympathy in prolific action. Its direct material aid to man, releasing him from the bondage of those dreaded and inplacable foes, "pain," "disease," "sorrow" and "death." If it is true that "a man can not do good or evil to others without doing good or evil to himself," then, indeed, the credits of one true doctor are worth more than those of all the famous soldiers of all times.

In the words of Count Joseph de Maistre, "I bow myself to the earth before him of whom it can be said: 'Pertransivit benefaciendo.' (He goes about doing good); who has succeeded in instructing, consoling, relieving his fellow creatures: who has made real sacrifices for the sake of doing good, those heroes of silent charity who hide themselves and expect nothing in this world."

Education. culture, position and wealth can not purchase real happiness nor blessed pleasures. The heart, the mind, the motives of our daily actions are the factors which determine our happiness and elevate us to the highest form of being. The doctor's beneficient work carried on in this spirit makes our professions superior to all others, however worthy. Who can describe, who can estimate the felicity, the beatitude of such active sympathy in due form? I will cease my prosaic extolling to allow the lyre of Burns the better to sing:

> "It's no in titles nor in rank;
> It's no in wealth like Lon'on Bank,
> To purchase peace and rest;
> It's no in making muckle mair;
> It's no in books, it's no in lear.
> To make us truly blest;
> If Happiness hae not her seat
> And centre in the breast,
> We may be wise, or rich, or great,
> But never can be blest."

Let us set for ourselves a high ideal of culture; for without an ideal of some kind life has no significance. Let our ideal be perfect manhood and womanhood. That culture which plumes itself with a mere smattering of knowledge, a little information obtained at college is truly dangerous. It is diametrically opposed to the basic principles of the true professional man, who sees more than mere exclusiveness and class distinction in his learning.

What we learn from vanity or self-emulation does not form character or remain of permanent value; whereas that knowledge which we acquire from a genuine desire for knowledge for its own sake enters into our mental processes and becomes fixed as an enduring part of our character. Hall says: "I have seldom seen much ostentation and much learning met together. The sun, rising and declining, makes long shadows; and mid-day when it is highest, none at all."

Let us strive for that harmonious expansion of all our powers which is the ideal of human life completing itself on all sides. With Plato we believe that "the wise man will esteem above everything and will cultivate those sciences which further the perfection of the soul." Our mission in life, laboring among our fellow men, is so high that our best gifts thoroughly cultivated are none too great. The man of liberal education is a life-long student and as such never works in only a single direction. He will strive to be thoroughly informed in all particulars pertaining especially to his branch of the profession; but. as a liberal student, he will keep pace with the progress in other branches of the vast science, and acquaint himself with the best that has been done and written; for he realizes too well that all forms of knowledge are related.

Some will stand aghast at the magnitude of this task, saying life is too short to accomplish all this, but it is only too true that division of labor and the increasing tendency to specialization, while producing greater efficiency in each particular department, easily has a deteriorating effect upon the standard of the profession as a whole. We want many-sided men and women, who, while they are thoroughly conversant with all the technique and detail of their particular department, escape the narrowing influence of purely professional studies, and are keenly alive to all the whole world of human interests.

To most men wealth, power, position and fame appeal most forcibly Our aim should be nobler, broader, than the pursuit of material things. Our ideal, that which in our innermost heart we love and strive for, is the truest expression of ourselves. As Spalding says: "what we yearn for seems to be more truly part of ourselves than what we possess." He, who is drawn to study, not from motives of utility or even as a means of livelihood, but by disinterested sympathy, derives the most lasting good. The Germans term such studies which are persued with a view to the material gain to be derived from them, as "Brod-Studien," (bread-studies). Studies which are persued merely as "Brod-Studien" do little indeed to elevate and illumine the mental atmosphere of a profession.

The medical and dental professions open up larger aims than the mere sordid pursuit of material things. Here, more than elsewhere, the professional man should surpass his fellow man by what he *is* and *does* rather than by what he *has* or *knows*. His worth and that of his actions is determined by the spirit in which he works and strives. If he takes no delight in his labor, and works solely for profit, chances are he will soon be guilty of criminal practices and abuses.

In the medical man we require not only a cultivated mind but a complete man—wise, estimable, brave, generous, and above all, loving and God-fearing. To him, more than to others, come the opportunities and indirect demands for true philanthropy in shape of the ever-present charity-patients. How nobly Boerhave said: "My poor are my best patients. God pays for them." Let us be imbued with Boerhave's earnest belief in the nobility and importance of the doctor's mission and do our very best for the welfare of all, high and low, rich and poor.

Let us strive to raise the standard of professional life. Find out and do the highest, noblest work of which you are capable, become all it is possible for you to become. The achievements of our professions are the proudest of any in the domain of science. The future rests upon therapy, and the fate of humanity is in its keeping. We shall be faithful, brave and bold; neither deluded by the hope of easy success nor disheartened by long delay. We shall love our profession for its own sake, and when you leave your college may you leave it as true lovers of intellectual and moral power, resolved to spend your lives in evolving and upbuilding your own being, to produce a harmonious expansion of all the powers of mind and soul, and to help your fellow man.

Finally, to all that are actuated by these sentiments in the faithful performance of their daily duties, I extend the greeting made memorable at medical college functions by hat grand man and ideal physician, Dean Wm. E. Quine:t "I wish you God-speed,"

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CONSULTATION WITH THE PHARMACIST.

The weakest part of the average physician's medical education is his limited knowledge of the compatibility and incompatibility of drugs; and the prescription files of any drug store contain abundant proof of this fact. The blame for the incapacity rests originally with the medical schools, none of which teaches its students how to prescribe medicines; for while it is true that therapeutics is well taught; the physical and chemical incompatibilities and the actual prescribing of medicines are practically ignored.

The result is that physicians, otherwise quite capable, are constantly prescribing impossible or inert combinations. Doctors, for instance, often order a certain quantity of a solid drug dissolved in less water than will disolve it; and so common is this error that it is a legitimate custom for the druggist to leave out enough of the solute or add enough glycerine to render a solution possible.

Pharmacists derive considerable amusement from the prescriptions of some of the medical fraternity; and some druggists may be pardoned if they are a little skeptical about the importance of every ingredient in a prescription, particularly if it is not possible to get every ingredient into the form ordered.

The practical prescriptionist is an expert at compatibility for his daily work brings him continually face to face with the problems of compatibility and incompatibility; and he usually knows more Materia Medica (not Therapeutics) than all the physicians in his town. Therefore he is amply able to give us valuable advice in the matter of ordering drug-combinations; and every doctor should get in close touch with his prescriptionist, should consult with him freely about compatibility, purity, etc., and should not be ashamed to learn from him.

Let us not make the mistake of thinking that we will injure our reputation by asking advice and thus exposing our ignorance; because the prescriptionist is already aware of our short-comings along this line, and he will certainly have respect for the man who is willing to profit by expert information, and he will take more interest in properly compounding the prescriptions of such a man, than he would with the prescriptions of the uninformed man, attempting to hide his ignorance. Moreover, frequent consultation with the prescriptionist will tend to establish a bond of friendship and mutual esteem which should be not only profitable but pleasant as well.—*Medical Consensus.*

ALUMNI NOTES.

Paul O. Martin '07 is on the voting card for nomination to the Board of Pharmacy. All the R. P.s of the class of '07 will be sure to give him a vote.

Paul Seyfert '06 passed the recent examination of the Illinois Board of Pharmacy and will try the Wisconsin examination next month.

E. P. Hubbard '96 has opened a pharmacy at the northwest corner of 31st St., and Michigan Blvd. Mr. Hubbard for several years held a responsible position with the Public Drug Co.

Dr. Matthew W. Borland died in Los Angeles, Cal. November 21st, at the age of 74 years. He was one of the organizers of the Chicago College of Pharmacy and was for many years actively interested in its success. At one time a prominent retail druggist, he afterward studied medicine, was graduated by Rush Medical College and gave up pharmacy for medical practice. Dr. Borland was secretaryof the Illinois Pharmaceutical Association during 1881 and 1882.

SENIOR NOTES.

Pharmacy Quizmaster: What precautions should be taken in cutting chloroform for Phosphorus Pills?

Who discovered the use of Terebinthinated Saw-dust for cleaning mortars, spatulas and ointment slabs in the Pharmacy Laboratory? Ask Professor Hallberg.

While making Belladonna Plasters in the Pharmacy Laboratory it was suggested that they be worn to get the therapeutic effect, especially by the "Gum-chewers."

The boys from the University of Illinois School of Pharmacy who took the State Board Examination, November 19th and 20th for assistant were all successful, namely, B. L. Davies, Otto A. Fett, James H. Miller, Charles G. Sells, Frank E. Shipman, J. J. Staszak and O. J. Lorenz.

Can it be the car service that brings Messrs. F. K. Anderson and Delmar Fidler to school late every Monday morning?

The Class made Rudolph, the janitor, happy with a Thanksgiving present.

Mr. S. F. Voss, has been requested to hold his breath while announcements are being made in the Pharmacy Laboratory.

Mr. Staman, performed a very interesting operation before the class, by dissecting the adhering substances from his pill-machine, just at the close of the laboratory excercise.

Professor Bloch of Germany, gave a fifteen minute talk to the class, on his most wonderful book for students who wish to learn German, French and Spanish. As a result Mr. Skinner is studying German in addition to Pharmacy.

The Senior Class has organized and elected the following officers:

President—W. P. Williamson.
Vice President—Delmar Fidler.
Secretary—A. S. Kisner.
Treasurer—Raleigh Earel.
Executive Committee:—H. D. Baldwin, R. M. Gray, Charles G. Sells, Harry G. Skinner, Rexford de Thompkins and S. F. Voss.

On the anniversary of the death of Albert E. Ebert, November 20th, memorial exercises were held at the School. The entire senior class was present at the ceremonies which were simple in character, consisting of an address by Professor Hallberg and brief remarks by Professor Day and Mr. Snow. Owing to unavoidable delay, the crayon portrait of Mr. Ebert which was to have been presented to the College on this occasion, was not forthcoming, but is expected soon. It will be suitably framed and hung in one the lecture halls.

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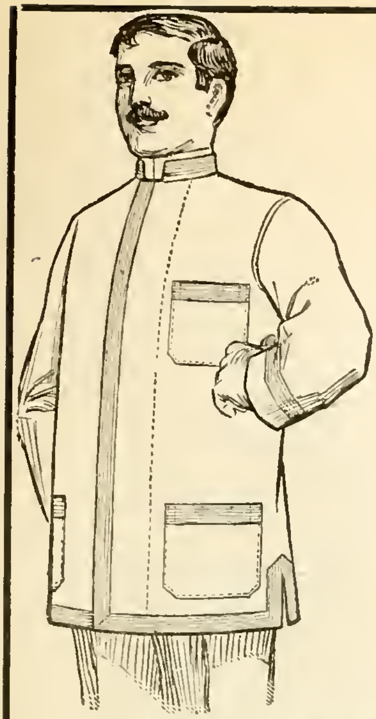

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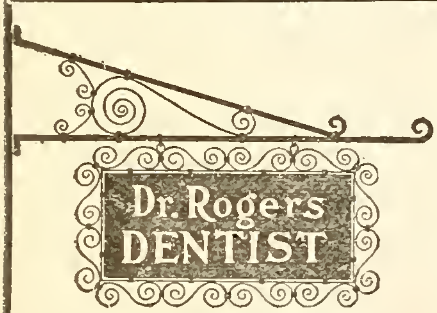

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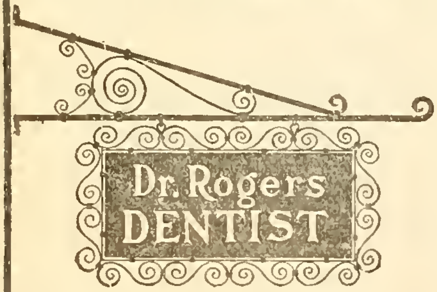

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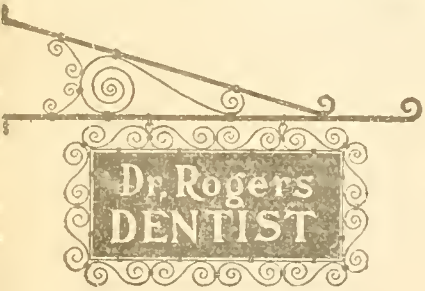

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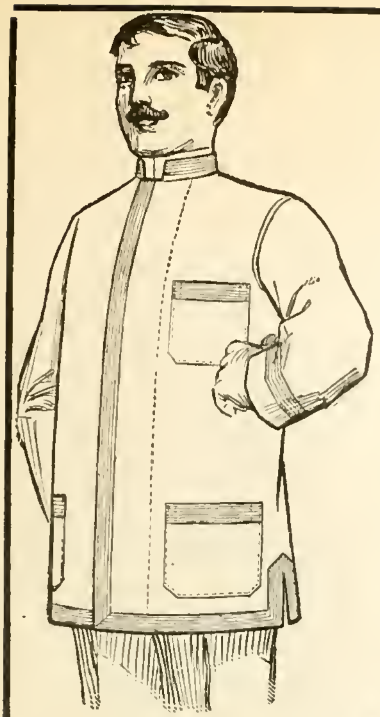

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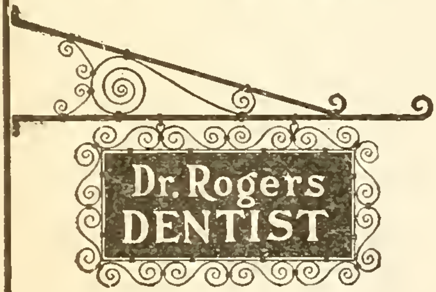

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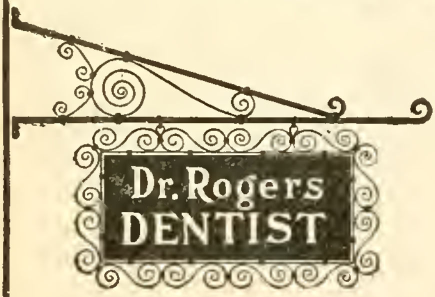

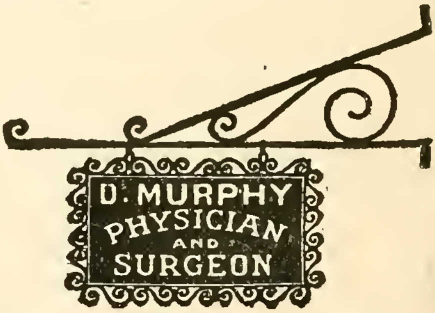

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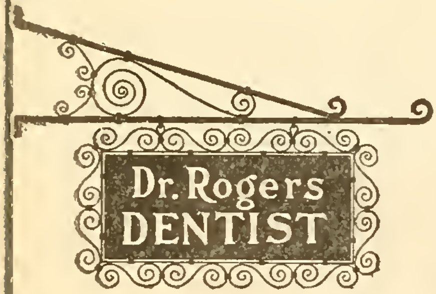

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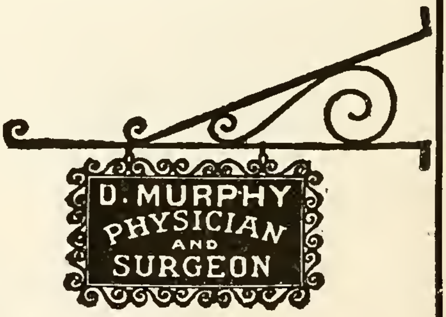

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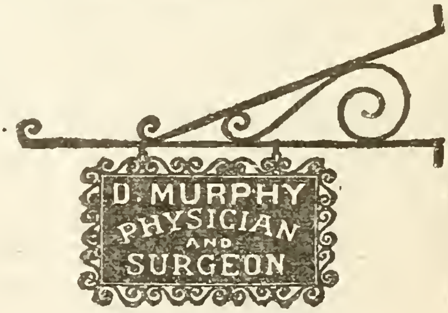

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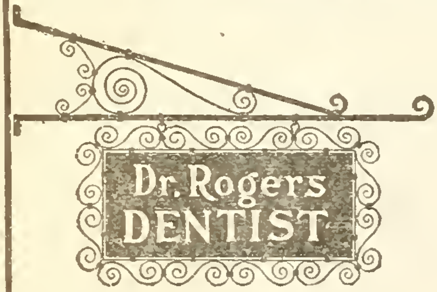

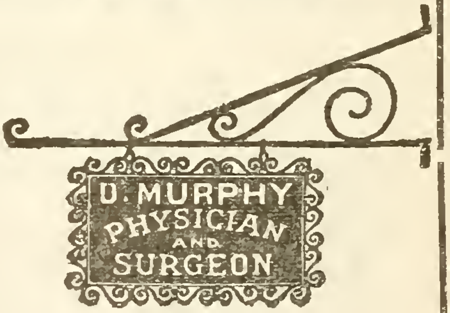

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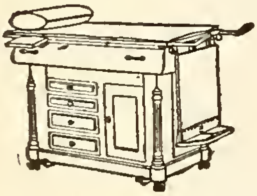

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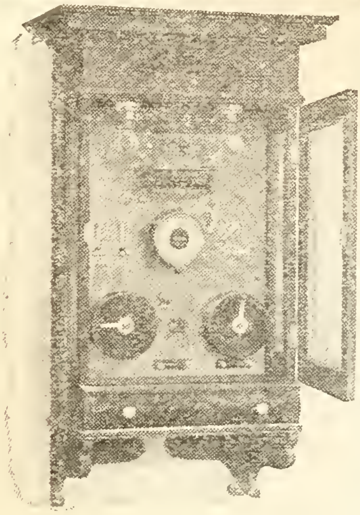

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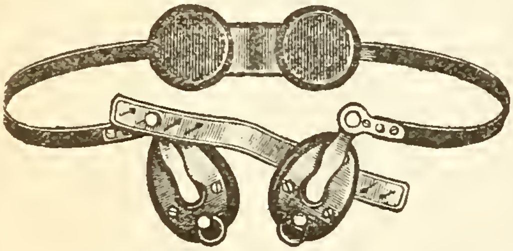

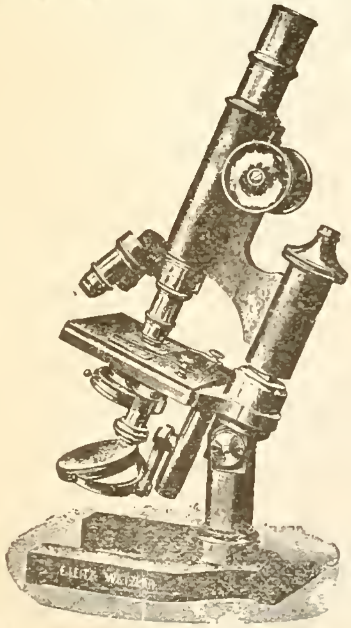

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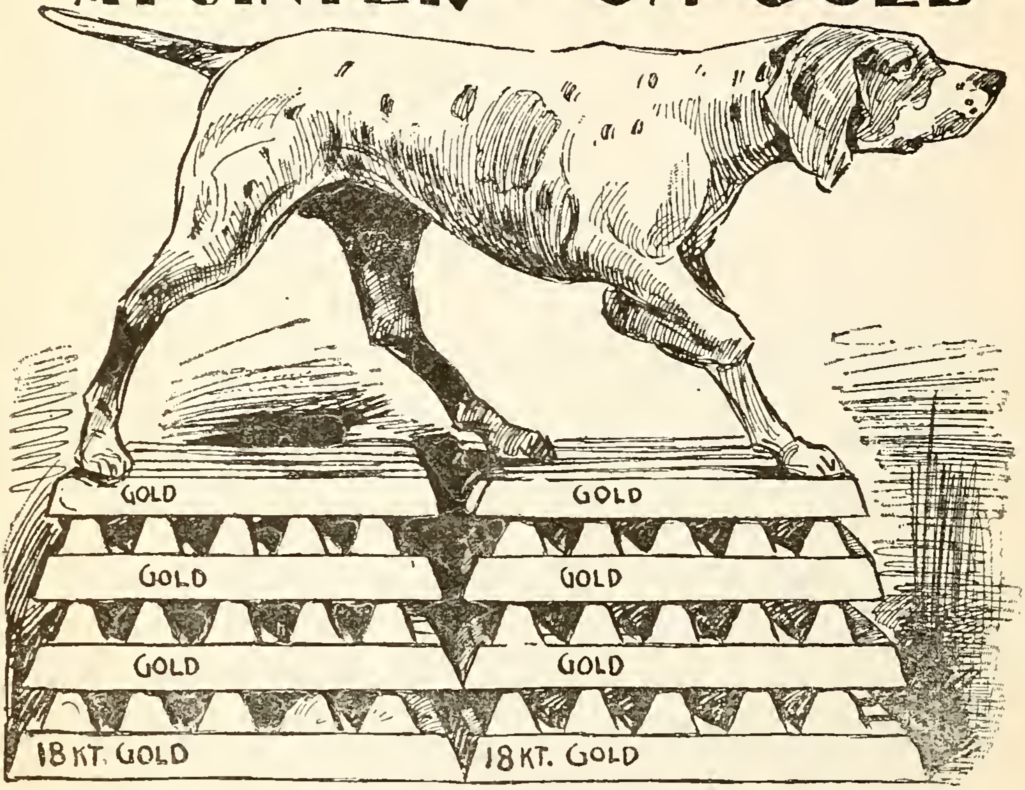

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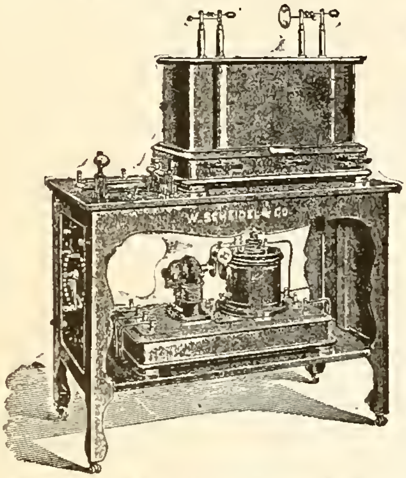

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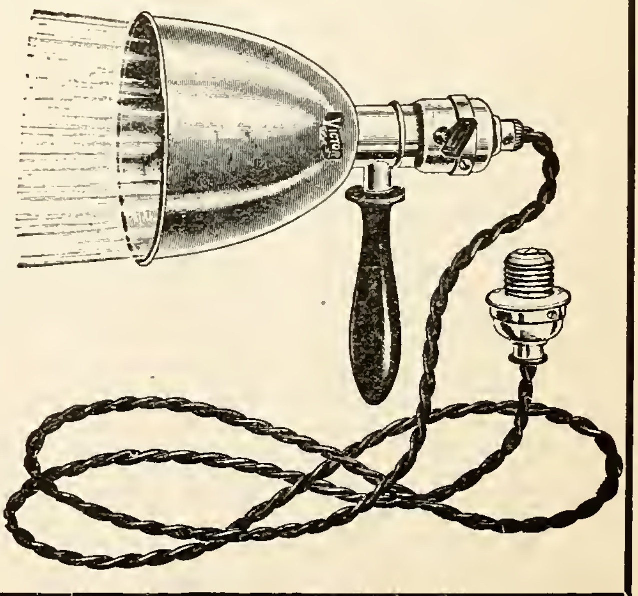

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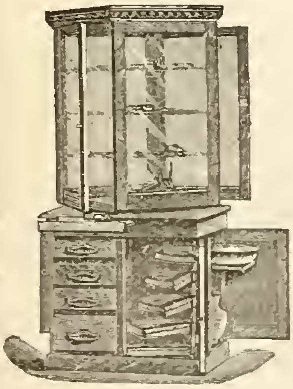

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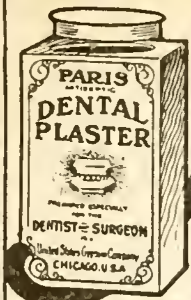

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